Centers for Disease Control and Prevention

Global Health Activities Report

Fiscal Year 1997
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Introduction

The Centers for Disease Control and Prevention (CDC) is pleased to present the FY 1997 Global Health Activities Report. As with the 1996 Global Health Activities Report, the 1997 report is both a summary of CDC/ATSDR international activities and a reflection of the evolution of international public health priorities and CDC's response to them in terms of philosophy and process. International health issues ranging from emerging infectious diseases to environmental contamination continue to shape the way CDC fulfills its mission of promoting health and quality of life by preventing and controlling disease, injury, and disability.

A publication from the Institute of Medicine, *America's Vital Interest in Global Health (1997),* focuses on the role of the United States in the evolving global health picture. This report describes how, in the global health arena, the United States has a vital and direct stake in the health of people around the world which is based on a long and enduring tradition of humanitarian concern as well as specific self-interest. Our self-interest in global health includes protection of our citizens, enhancement of our economy, and advancement of our international interests. The IOM report also recognizes the need for strong and decisive leadership in global health that will transcend the myriad of challenges to the development of appropriate health policy and programs. These policies and programs will surely be needed to combat the burden of premature death and disability that will ultimately impact the interests of the United States.

It is with this charge that CDC has taken the lead in developing, coordinating, and implementing a surveillance and prevention-based response to growing global health needs. In doing so, CDC, through the Office of Global Health, has built a series of collaborative approaches with government Ministries of Health, multinational organizations, and non-governmental agencies that are based on a strategy of developing international partnerships that help address CDC' s global health interests.

During 1997 the Office of Global Health (OGH) was formally established, residing in the CDC Director' s Office, as the coordinating arm for international activities throughout the agency. In this role OGH strives to provide leadership and guidance for policy development and to facilitate CDC-wide interaction on cross-cutting global health matters.

This year' s Global Health Activities Report is a product of the time and effort of many individuals from every Center/Institute/Office across CDC. Specific international health activities conducted during FY 1997 are categorized by the subject matter and country in which they took place and then organized by region: Africa, Americas, Asia/Pacific, Europe, Middle East and the New Independent States. The appendices offer indexes by subject and country, lists of personnel stationed overseas, WHO collaborating centers at CDC and much more. Of note are the 641 visitors and guest researchers from 75 countries that visited CDC during FY 1997 and the 2,546 trips taken by CDC staff to 145 different countries.

It has been said that change is inevitable and with global health, this change will bring new and complex challenges requiring the need for unique, coordinated solutions. This report shows how CDC, through OGH and the Centers/Institutes/Offices, will continue to not only methodically address prevention issues, but also maintain the resolve to be flexible in a coordinated response to the issues presented to the agency from the world.

Stephen Blount, M.D., MPH
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Agency for Toxic Substances and Disease Registry (ATSDR)

The Agency for Toxic Substances and Disease Registry (ATSDR) continues to enhance its worldwide contacts through an exchange of information in areas providing potential benefit to Superfund programs.

A memorandum of understanding was signed in 1990 between ATSDR and the Pan American Health Organization (PAHO). Under this memorandum of understanding, ATSDR continues to provide technical assistance on environmental health issues to Mexico and other PAHO member countries. ATSDR's efforts thus far have focused on building capacity at the local, state, and federal levels on both sides of the US-Mexico border.

In accordance with a longstanding memorandum of understanding, ATSDR continues to share copies of its toxicological profiles with members of the International Programme on Chemical Safety (IPCS) of the World Health Organization. Through in-kind support ATSDR recommends revisions to and receives copies of the Environmental Health Criteria Documents developed by the IPCS. IPCS has announced its intention to use ATSDR' s toxicological profiles as primary source documents for the development of their Concise International Chemical Safety Documents. ATSDR is collaborating with IPCS in this effort.

ATSDR' s Great Lakes Human Health Effects Research Program has funded research on the health effects of contaminants in the Great Lakes. As part of its work in this region, ATSDR has collaborated with Canadian health and environmental agencies on Great Lakes health issues. In FY 97 ATSDR co-sponsored, along with Health Canada and the Quebec Ministry of Health and Social Services, Health Conference ' 97CGreat Lakes/St. Lawrence. This international conference focused on the effects of the environment on human health and was the culmination of the first 5 years of ATSDR' s Great Lakes research program and its findings to date.

Also in FY 97, ATSDR presented its preliminary research findings at the International Joint Commission Wingspread Conference on Policy Implications of New Evidence Regarding Toxic Substances and Human Health. These new findings resulted in recommendations to the International Joint Commission to continue its efforts to encourage both the United States and Canada to reduce the levels of persistent toxic chemicals in the environment.

Epidemiology Program Office (EPO)

Over the past year the Division of International Health (DIH) has assisted Egypt in its investigation of lead-contaminated flour, provided training support and assistance in Finland and Germany; provided consultation, training, and training materials to Public Health Schools without Walls (PHSWOWs) in several countries and begun working with the London School of Tropical Medicine and Hygiene on developing a distance learning program to support the ongoing training needs of Field Epidemiology Training Program (FETP) graduates. These materials will also be a model for Ministries of Health and other health-related programs that need to develop programmed learning for use in their respective countries and regions. In addition, DIH is collaborating with the World Health Organization (WHO) and other partners to develop new methods for economic evaluation of health information and surveillance systems in the Newly Independent States of the former Soviet Union. In another collaboration, DIH and

Batelle Corporation are developing tools for evaluating courses in terms of their impact on public health practice as well as policy setting and decision making. Initial evaluations of these tools are currently being conducted in several countries.

DIH has also worked with the U.S. Agency for International Development (USAID) in Central Asia, where disease-specific policy changes have been fostered in the interest of gaining the confidence of local governments and the regional USAID Mission and in the interest of designing a more long-term CDC presence in the region. During FY 97 DIH has raised over $2 million in external funding and has obtained commitments for an additional $2 million in external funding to be provided beginning in 1998. Approximately 80% of these funds are from USAID and from Rotary International.

Data for Decision Making

Several Data for Decision Making (DDM) tools were developed and tested during FY 97:

Generic Integrated Training Program Instructional Package: This is a set of training modules intended for use by public health staff at national, regional, provincial, district, and health center levels. The target audience has responsibility for such activities as resource allocation, program management and evaluation (including disease prevention and health promotion) as well as management of personnel, budgets, and physical facilities. In some cases, trainees will have the authority to set priorities for various programs, establish budgets, request funds, and allocate resources.

Epidemic Preparedness and Response: This training tool has training modules for meningitis, cholera, and yellow fever based on experience in Cameroon. The planning component of the modules will assist Ministry of Health planners in the preparatory steps needed for epidemic preparedness, identification of resources, and identification of technical needs. The instructional component of the modules will support trainees in their efforts to plan for and detect epidemics of these three diseases.

Evaluation of Existing DDM Projects during FY 97:

DDM has maintained its commitment to the evaluation process. Evaluation and the use of indicators is not only integral to all DDM training programs, but efforts have been made to obtain external evaluations of all in-country DDM projects. The reports of the final evaluations of DDM/Philippines and DDM/Bolivia Phase I were received in FY 97. These evaluations, along with observations from other DDM projects currently being conducted, point out the following common points:

- The match between participants and material in training programs is crucial. The material must suit the work situation of participants and the participants must be able to use the material that is presented in their daily work settings.

- The emphasis on in-service and supervised application of acquired skills is well placed and has shown great returns on investment.

- Any technology used in projects should be chosen to suit local conditions for use, maintenance, and re-supply or replacement needs.

- The motivation and enthusiasm of in-country counterparts is key to the success and sustainability of the project.

- Successful projects require a high level of investment from CDC and a commitment to spending extended periods in the field during the tenure of the project

National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)

The National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) participates in global efforts to:

- prevent and control chronic diseases;

- assess and modify behavioral risks that contribute to global disease burden;

- promote the health of women, mothers and infants through provision and evaluation of family planning and reproductive health services;
- promote HIV education and prevention activities for school-aged children and reproductive-aged women; and
- build comprehensive approaches to global health promotion, including health promotion for school-aged children and adolescents, and the Mega Country Health Promotion Network

The Center not only works with dozens of countries directly, but also works through international organizations such as the World Bank and World Health Organization (WHO).

Reducing Behavioral Risks and Determinants of Disease

Nutrition

NCCDPHP' s Division of Nutrition and Physical Activity (DNPA) participated in various activities to assess and reduce malnutrition worldwide. DNPA provided technical assistance and consultation to conduct surveys on nutrition and health in Honduras and Cyprus. DNPA worked with the World Food Programme, UNICEF, Save the Childrens' fund UK, and with North Korean authorities to provide an emergency nutrition assessment in the People' s Republic of Korea. This assessment was used to quickly ascertain the prevalence of severe malnutrition in young children there and to train health care workers to recognize moderate and severe wasting in children. DNPA also collaborated with the Gore-Chernomyrdin Health committee to address the problem of Micronutrient Malnutrition in the Russian Federation.

Physical Activity

NCCDPHP' s Division of Nutrition and Physical Activity (DNPA) collaborated with the Russian Ministry of Health, the Russian National Research Center for Preventive Medicine and the

Russian Institute of Health Education to develop, test, and implement prevention strategies to reduce cardiovascular disease in Russia with an emphasis on policy and environmental approaches. DNPA also provided technical assistance to the WHO Consultative Group of Active Living, the Active Living policy group, and the Physical Activity Policy Network on international standardization of measures for physical activity assessment.

Tobacco Control

NCCDPHP's Office on Smoking and Health (OSH) contributed to tobacco control activities worldwide in FY 97 through bilateral and multilateral cooperation. OSH continued its collaboration with WHO, including 1) serving as the WHO Collaborating Center on Tobacco or Health, 2) providing technical assistance for development of comprehensive tobacco control programs to member states with an emphasis on developing countries and central and eastern European countries, 3) dissemination of research information and educational materials, 4) coordination of public and media events to promote the concept of tobacco-free societies, 5) convening of the first conference of all nine WHO Collaborating Centers for Tobacco and six WHO Regional Offices to plan a strategy for strengthening global tobacco control networks, 6) preliminary work on a global network of clearinghouses to standardize, strengthen, and facilitate the global electronic exchange of tobacco-related information and resources, 7) placing WHO's Global Tobacco Country Profiles on the Internet for worldwide access, and 8) convening a workshop of WHO collaborating centers at the 10th World Conference on Tobacco.

In May 1996 the World Health Assembly adopted a resolution to initiate the development of an International Framework Convention for Tobacco Control. OSH participated in discussions to formulate a consultative group to define and promote the framework's objectives. OSH has recently detailed a medical epidemiologist to the World Bank to serve as a CDC liaison and to reinforce the Bank's public health efforts. The World Bank recently passed a resolution to promote tobacco-free economies and continues to actively explore efforts to implement this concept. OSH continues to collaborate with the Tobacco Control Commission of Africa (TCCA) and the WHO African Regional Office to facilitate development of national and regional tobacco control capacity and ensure the adoption of tobacco control programs and priorities in Africa. OSH also continues to collaborate with Mexico as part of the United States-Mexico Binational Commission.

Behavioral Risk Factor Surveillance

NCCDPHP's Division of Adult and Community Health (DACH) continued its active role in the World Bank Project VII on noncommunicable and chronic diseases in China, providing technical assistance to the Chinese Academy of Preventive Medicine (CAPM) to collect Behavioral Risk Factor Surveillance System (BRFSS) data in eight major cities, and in the design of a BRFSS Conference in China. DACH also provided information on BRFSS and other chronic disease activities to scientists from a number of countries.

Preventing and Controlling Chronic Diseases

Diabetes Control

NCCDPHP's Division of Diabetes Translation (DDT), serving as the World Health Organization (WHO) Collaborating Center for Development of Integrated Primary Care Programs for

Community Practice, continued to provide technical and financial assistance for the Global Diabetes Education Initiative and to the International Diabetes Federation (IDF)/WHO Diabetes Epidemiology Training Program in Cambridge, England. DDT has embraced its responsibilities to coordinate the United States' diabetes effort under the Gore-Chernomydrin Bilateral Commission and coordinated negotiations between the American Diabetes Association and their counterparts in Russia to facilitate the creation of a voluntary health agency.

DDT also provided expert consultation and scientific review to the World Bank in its Health Services and Management Project in Hungary. DDT worked with the Health Ministry of India to develop basic diabetes guidelines for primary care physicians. DDT' s Director has continued to work extensively with the Federacion de Asociaciones Mexicanas de Diabetes and the Panamerican Health Organization (PAHO). In addition, DDT' s Associate Director for Science and Programs served on the planning committee for the Deidesheimer Gesprach Meeting on Obesity in Deidesheimer, Germany. DDT' s Director spoke on Evaluating National Programs at the 16th IDF Congress in Helsinki, Finland and serves on the IDF' s Compass Project. DDT' s Director also spoke at the First Croatian Diabetology Congress in Zagreb, Croatia.

Oral Health

NCCDPHP' s Division of Oral Health (DOH) provided technical assistance and coordination to several countries who are considering, or have recently implemented, water fluoridation systems. In collaboration with PAHO, DOH also provided technical assistance for oral health surveillance to establish baseline data for dental caries in six South American countries prior to the introduction of salt fluoridation. During 1996-97, a visiting fellow from South Korea worked with DOH staff to develop a National Plan to fluoridate South Korea which is now being implemented. DOH staff also served as a resource on fluoridation for the micronutrient area of the Gore-Chernomyrdin Health Committee efforts to eliminate micronutrient malnutrition in Russia.

Cancer Control

NCCDPHP' s Division of Cancer Prevention and Control (DCPC) provided support to the Imperial Cancer Research Fund (ICRF) for an add-on psychosocial research component to a multi-year, randomized controlled trial of the efficacy of flexible sigmoidoscopy (FS) screening for colorectal cancer. In addition, DCPC provided financial support for the Union Internationale Contre le Cancer (UICC), widely recognized for its on-going efforts in developing and maintaining standards for cancer staging classification systems.

Promoting the Health of Mothers and Infants, and the Reproductive Health of Women

NCCDPHP's Division of Reproductive Health (DRH) developed important partnerships to support international family planning activities, including collaboration with several USAID Cooperating Agencies, the United Nations Fund for Population Assistance (UNFPA), UNICEF, Pan American Health Organization (PAHO), the Inter-American Development Bank, the Rockefeller Foundation, the World Bank, CARE, WHO, and NGOs in developing countries. DRH will continue to promote "South-to-South" technical assistance by facilitating skill-sharing among developing countries. In addition, DRH is exploring expanded participation in reproductive health in refugee populations. In 1997, DRH developed the Contraceptive

Tracking System (CTS) User's Guide and the Contraceptive Complaint Ladder, and provided technical assistance in contraceptive logistics management to a several countries. DRH was involved in planning, implementing, analyzing, and reporting on surveys in twelve countries, including national surveys of reproductive health, young adult reproductive health surveys, and specialized surveys to evaluate programs. Computer Specialists provided on-going support in the management of data archive files for international survey data sets. DRH collaborates with the Woodruff Health Science Center of Emory University and the Georgia Department of Human Resources to form a World Health Organization Collaborating Center in Perinatal Care and Health Services Research in Maternal and Child Health (WHO/CC), a global research center formed to address problems of reproductive-age women, pregnant women, and their children during the perinatal period of life.

The WHO/CC works with health professionals in Ministries of Health and universities to build a foundation of sustainable knowledge and skills in health services research. It also assists individual countries with 1) surveillance and assessment of national health needs, 2) assessment of health care delivery systems for women and children, 3) design and evaluation of effective, safe, and sustainable intervention strategies, and 4) training and financial sustainability for clinical practice, epidemiology, health policy development, and public health management. In 1997, DRH participated in activities supporting Safe Motherhood, an international initiative launched by the United Nations with the goal of ensuring that women go through pregnancy and childbirth safely and give birth to healthy children.

Promoting the Health of School-Aged Children and Adolescents

NCCDPHP's Division of Adolescent and School Health (DASH) serves as the WHO Collaborating Center on Health Education and Promotion for School-Aged Children and Adolescents. A CDC senior staff person is assigned to WHO's Division of Health Promotion, Education and Communication, Health Education and Health Promotion Unit (HPR/HEP) to help WHO develop international programs and policies to improve health through schools, and to plan and organize collaborative WHO/CDC efforts. Work is implemented through three broad health promotion strategies that include: 1) advocacy to increase support for school health promotion; 2) mobilizing public and private resources for the development of health promoting schools; and, 3) strengthening national capacities to improve health through schools. DASH staff provided leadership to the Joint U.S.-Russian Health Committee of the Gore-Chernomyrdin Commission on Economic and Technological Cooperation. Priority areas for both countries include: 1) preventing alcohol and drug abuse, 2) preventing tobacco use, 3) promoting cardiovascular risk reduction, 4) improving school health programs, 5) assessing and monitoring priority health risk behaviors among youth, 6) preventing micronutrient malnutrition, and 7) improving STD control, particularly among youth. DASH participates in the Mega Country Health Promotion Network by working with member nations to improve health through schools. DASH staff also provided leadership in building national capacity for school health promotion in South Africa as part of the Gore - Mbeki Binational Commission.

The Mega-Country Health Promotion Network

NCCDPHP's Division of Adult and Community Health (DACH) became a WHO Global Collaborating Center for Health Promotion this year. DACH activities will be seen as models for the exchange of information for surveillance and health promotion throughout the world. The Collaborating Center has established a "Mega-Country Health Promotion Network" to mobilize

the world' s most populated countries to address the global burden of disease and promote health. These countries include Bangladesh, Brazil, China, India, Indonesia, Japan, Mexico, Nigeria, Pakistan, the Russian Federation, and the United States. Objectives for the Network include increasing recognition of health problems, improving each country' s own national capacity to promote health, identifying Network priority areas, selecting action areas and initial collaborative activities, identifying potential partners within and between countries, and providing support to other nations in the region or world. DACH continues to participate in the evaluation of health promotion and community health interventions with the European Office of WHO and Health Canada. A policy maker report will be released on April 3, 1998.

National Center for Environmental Health (NCEH)

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization and technical support to international members of CDC's Cholesterol Reference Method Laboratory Network (CRMLN) as follows:

- Lipid Reference Laboratory (LRL), University Hospital "Dijkzigt", Rotterdam, The Netherlands: The LRL performs instrument and reagent evaluation for manufacturers using the CRMLN protocols for certification of manufacturers. The LRL also cooperates with the Dutch EQA Society (180 laboratories participating) to set target values on calibrators and controls and to develop and select candidate reference materials and controls for total cholesterol (TC) and HDL cholesterol (HDL.)

- Osaka Medical Center for Cancer and Cardiovascular Diseases (OMC), Osaka, Japan: OMC is the support center for lipid standardization in Japan. OMC provides lipid reference services in a domestic standardization program of Japanese clinical laboratories performing TC, HDL cholesterol, and TG. This program does not issue certificates. OMC also provides standardization for three epidemiological studies in Japan.

- Institute of Biochemistry, Royal Infirmary, Glasgow, United Kingdom: The Institute of Biochemistry serves as the reference center for lipid disorders in Scotland and as a service laboratory for the Infirmary and surrounding physicians. CRMLN activities include promotion of standardization efforts, providing sera with assigned values for calibration, and providing reference values for materials used in several national QC and standardization schemes. These schemes include the UK-wide National Initiative for Cholesterol Accuracy, Measurement, and Standardization (NICAMS); WEQAS (a Welsh external quality control scheme); NOKLUS (a Norwegian QA scheme); and a pilot QA scheme in Greece. These programs have active involvement with National Health Service clinical chemistry laboratories, private contract laboratories, and research laboratories involved in large-scale epidemiological studies.

- Canadian Reference Laboratory (1996) Ltd. (CRL), Vancouver, Canada: This laboratory was established to serve the needs of the clinical chemistry community in Canada and therefore serves as the support center for standardization of lipid

measurements in Canada. The CRL operates a blinded external proficiency testing program that uses fresh serum pools with values assigned by the reference methods for TC and HDL, and a CDC-standardized method for TG. This program, called LIPID-I (TC and TG only) or LIPID-II (includes HDL, LDL, apo AI and apo B), has about 150 subscribers. It has been shown to have improved the measurement of lipids and lipoproteins in its subscribers.

- San Raffaele Hospital Reference Laboratory, Milan, Italy: This laboratory has organized an external QA scheme for the GISSI prevention project. The scheme is based on frozen samples (3 events/year, 2 levels per event). About 100 laboratories participate in the program. San Raffaele Hospital Reference Laboratory prepares the samples, provides target values for TC and HDL cholesterol, and evaluates the data. The results from four years' work with the GISSI project were published in the peer-reviewed literature in 1997.

Educational Activities

EHHE provided assistance to faculty of the Hanoi School of Public Health in the development of a curriculum for a course in environmental health.

Emergency Response

NCEH' s International Emergency and Refugee Health Program (IERHP) was involved in several emergency response activities during FY97. In North Korea IERHP staff conducted an emergency assessment of the health status of vulnerable populations. In Zaire (now the Democratic Republic of the Congo) IERHP staff reassessed refugee health status following increased rebel activities in occupied areas following the first mass exodus from Rwanda in July of 1994. In Rwanda IERHP staff developed an emergency health surveillance system, assessed the health needs of returning refugees, and helped coordinate humanitarian relief efforts. In Tanzania an IERHP staff member served as Emergency Health Coordination for UNHCR

Hazardous Effects

HSB is determining the health effects of volatile organic compound exposures to Russians living along the Volga River, where oil spills frequently occur.

Health Assessment (Renal Disease)

An NCEH/EHLS scientist in the Molecular Biology Branch is the US coordinator for the second joint EU/US Workshop: Urinary Biomarkers to Detect Significant Effects of Environmental and Occupational Exposure to Nephrotoxins to be held in June of 1998. The Proceedings of the first workshop were published in July of 1997. The second workshop will be hosted by the European Commission, CDC, and ATSDR. The workshop will focus on the appropriate use of biomarkers in the study of the effects of toxicants on children, the latest developments in the study of genetic risk factors of renal disease, the impact of comorbidities and environmental risk factors on the development for renal disease, and results of recent studies using biomarkers to detect and define the effects of various toxic exposures.

An NCEH/EHLS scientist in the Molecular Biology Branch is coordinating an international working group to develop recommendations for studying biomarkers of renal damage from nephrotoxic substances in clinical models. This group includes representatives from the United Kingdom, Germany, and Belgium, in addition to U.S. representatives from Oregon and North Carolina, and is developing recommendations for the study of biomarkers as indicators of the action of nephrotoxic substances on the kidney from the early reversible stages, through irreversible damage, to clinically significant endpoints using clinical models.

NCEH/EHLS scientists are collaborating with NIOSH researchers and Italian researchers to measure the early renal effects of occupational perchloroethylene exposure. Dr. Antonio Mutti of the University of Parma is providing his assay for brush border antigens (BBA) for addition to the EHLS renal battery of sensitive indicators of renal damage. Renal damage is one of the more sensitive effects of perchloroethylene exposure that can be quantitated.

NCEH/EHLS scientists are collaborating with ATSDR to perform a five year follow-up study of health consequences associated with elevated biomarkers. In addition to the EHLS battery of sensitive indicators of renal damage, Dr. Marc DeBroe of the University of Antwerp will provide several new tests for this study.

Heart Disease Reference Laboratory Services and Consultation

The CDC reference laboratory provided confirmatory analyses on survey samples for Dr. Rudolph Poledne, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic, providing reference method results for cholesterol, HDL cholesterol, and triglyceride. The reference laboratory also provided cholesterol reference values on reference materials for Dr. Sigfusson of the Icelandic Heart Association, Reykjavik, Iceland.

A NCEH laboratory scientist attended a meeting in Ottawa, Canada of the International Organization for Standardization, ISO/TC 212, Clinical Laboratory Testing and In vitro Diagnostic Test Systems. He represents CDC on the Reference Systems Working Group. The Working Group is developing international standards documents for: 1. Measurement of quantities in samples of biological origin-Description of reference materials, 2. Measurement of quantities in samples of biological origin-Presentation of reference measurement procedures, 3. Requirements for reference measurement laboratories, and 4. Metrological traceability of values assigned to calibrators and control materials.

A NCEH laboratory scientist attended a meeting of the IFCC Working Group on Lp(a) Standardization held in Graz, Austria. Lp(a) is considered to be a new independent risk factor for coronary heart disease. The laboratory measurement of Lp(a) is extremely variable and not standardized. The IFCC has begun activities to develop a reference material and reference method for use in standardizing the measurement of Lp(a). He attended the meeting to report to the Working Group on CDC's interest in collaborating with IFCC to standardize Lp(a) measurement.

Hemochromatosis

NCEH/EHLS scientists in the Molecular Biology Branch are developing methods for the determination of two mutations (polymorphisms) of the recently identified hemochromatosis gene (HFE). A study of these polymorphisms is planned, pending IRB approval, in collaboration

with Dr. Paul Adams of the University of Western Ontario. Hemochromatosis is one of the most common genetic disorder in humans with the prevalence of 3-5 per 1000.

Lead

In October 1997, under the sponsorship of the Gore-Chernomyrdin Commission, a collaborative investigation between NCEH' s Health Studies Branch (HSB), EPA, and Russian collaborators was conducted to measure the blood lead and hemoglobin levels in children of kindergarten age and to gather demographic and environmental exposure data about these children via a parent-answered questionnaire. A total of 1200 blood samples were collected and analyzed. The results of this investigation, in addition to previous work conducted by HSB and Russian investigators provided the scientific basis for drafting legislation for environmental lead abatement in the Russian Federation.

NCEH provided continuing support of LPPB/EHHE' s Lead in Egypt Project. NCEH provided further specimen collections, instrumental analysis, and quality assurance training for the staff of the Ministry of Health Central Laboratory in blood lead analysis. NCEH also provided analytical support for an EPI response to the lead poisoning in Komombo, Egypt (Aswan Dam area), and the Old Cairo area. Several hundred blood samples were received and analyzed for lead content, for comparison with analyses done by the Central Health Laboratory in Cairo. At the request of the Cairo Field Epidemiology Training Program and in conjunction with the Surveillance Branch, EHHE participated in the investigation of an acute outbreak of lead poisoning in the village of El Monshia and assisted in the identification of the environmental source of the lead problem. Staff returned to Egypt with a millwright and engineer to conduct further inquiries into possible solutions to the problem.

EHHE is working to establish a foundation to eliminate childhood lead poisoning in the Middle East. Participating countries are Israel, Jordan and Palestine. A regional strategy will be developed to evaluate the extent of lead poisoning in children and determine solutions that would reduce lead poisoning in children and have a measurable impact on the health of people and the environment.

NCEH provided extensive consultation to Beijing Medical University, and other public health agencies of the People' s Republic of China, for a number of different environmental health problems, including discussions to determine the causes and extent of childhood lead poisoning. Training, quality control support, and BLLRS enrollment were provided to initiate blood lead analysis for a pediatric lead poisoning study. Supplies were provided to the Beijing Medical University for a limited childhood lead poisoning study.

Through the Blood Lead Laboratory Reference System (BLLRS), NCEH continued to provide blood lead materials and technical assistance to international blood lead laboratories. These BLLRS materials have target values assigned by CDC, using the highly accurate method of inductively coupled plasma-isotope dilution mass spectrometry(ICP-IDMS). Twenty-five international laboratories received quarterly BLLRS samples during 1997.

Micronutrient Malnutrition

NCEH laboratory scientists were invited, by invitation of the Russian Ministry of Health, to participate in the International Conference on Health Nutrition Policies in Russia & Micronutrient Malnutrition Workshop, and a follow-up meeting with several Russian ministries, held in Moscow, Russia. Workshop participants developed strategies, collaborative activities to work towards the elimination of Micronutrient Malnutrition in Russia (fluoride, iron, iodine, and selenium deficiencies). In the role of lead for the Gore/Chernomyrdin micronutrient malnutrition priority health area, NCEH helped to facilitate and conduct a workshop on the iodinization of salt to eliminate iodine deficiency disorders for Russian, Ukrainian, and Belorussian salt producers. This workshop was sponsored by UNICEF, PAMM, and USAID' s OMNI program. As a result of this conference, all salt producers of these three countries signed a resolution agreeing to begin iodinization of salt. Also, appropriate standards and legislative/policy issues for the iodinization of salt were debated and agreed upon.

At the Regional Conference on Elimination of Iodine Deficiency Disorders (IDD) in Central & Eastern Europe, the Commonwealth of Independent States, and the Baltic States, NCEH scientists consulted and interacted with other scientists on the roll of IDD in the development of thyroid cancers in persons exposed to radioactive iodine. The discussions focused on identifying constraints in the implementation of national IDD programmers, and of devising ways and means of overcoming these constraints.

At the request of the Minister of Health of the Republic of Georgia, NCEH provided consultation, in collaboration with the PAMM program of the Emory University School of Public Health, to Georgian government officials in designing a national program to eliminate iodine deficiency disorders. Recommendations made as a result of this consultancy included, among others, establishing adequate laboratory capacity to monitor iodine deficiency in the Georgian population.

NCEH, in collaboration with the American International Health Alliance, facilitated and presented two breakout sessions on iron and iodine deficiency disorders during the 5th Annual AIHA conference in Atlanta, GA. Present at these sessions were various government and health officials from countries of the former Soviet Union. Topics presented included policy issues related to the assessment, surveillance, monitoring, and prevention of such nutritional deficiencies.

NCEH collaborated with the National Cancer Institute in a study of nutritional risk factors for cancer among residents of Linxian province in China, a area known to have endemic Keshan's disease (selenium deficiency). Nutritional status may modulate carcinogenesis, and some nutrients have important roles in chemoprevention. NCEH analyzed over 3000 samples for selenium and cholesterol content for this study.

In a continuing relationship with the Department of Health of the United Kingdom, NCEH provided consultation to the Nutrition Unit in London, and the MRC Dunn Nutrition Laboratory at Cambridge University, for evaluating laboratory performance in the UK National Diet and

Nutrition Survey, to ensure that results can be compared with those from U.S. studies, such as NHANES III.

NCEH continues to collaborate with the Program Against Micronutrient Malnutrition (PAMM) to develop improved analytical techniques for measuring serum vitamin A and measures of iron and iodine status. Visiting scientists from 5 countries received extensive laboratory training at NCEH to enable them to establish comparable analyses in support of national micronutrient programs. PAMM is jointly sponsored by CDC, Emory University, and the Task Force for Child Survival.

National Health and Nutrition Evaluation Survey (NHANES)

Work related to long-term preservation of biological specimens continues to be a focus at NCEH. An NCEH scientist served on the International Advisory Committee for the International Workshop on Ultra-Long-Term Cryogenic Preservation of Biological and Environmental Specimens. In addition to a presentation on the ASTRO software which manages the CDC Specimen Repository, CDC scientists presented a discussion of scientific and data management factors to be considered for the Biological and Environmental Specimen Time Capsule Project for 2001. At Oxford University, an NCEH scientist consulted with staff of the Clinical Trials Services Unit, which maintains a specimen repository, and also conducts long-term studies in nutritional biochemistry and chemoprevention. Similar discussions were held in Lyon, France, with staff of the International Agency for Research in Cancer. At Oxford and Lyon, NCEH presented seminars on preliminary data from NHANES III, as well as planned analyses for NHANES IV, and the relationship of these analytes to chemoprevention.

Data from NHANES III is being shared by NCEH and NCHS with our international colleagues: U.S. population normative data for 25-OH-vitamin D was presented at the 10th International Vitamin D workshop in Strasbourg, France. NCEH supports the international proficiency testing program for vitamin D through participation as a reference laboratory and through membership on its executive advisory committee.

Neonatal Screening: Birth Defects

The NCEH has provided dried-blood-spot quality assurance materials and performance evaluation reports for congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease, and homocystinuria to newborn screening laboratories and manufacturers of screening test products in Italy, Costa Rica, Brazil, Russia, Guatemala, Argentina, Thailand, Lithuania, Poland, Germany, Canada, Latvia, Belgium, Greece, the United Kingdom, Ireland, Australia, Spain, China, The Netherlands, Puerto Rico, Switzerland, France, Chile, Finland, Austria, New Zealand, Mexico, Uruguay, and Estonia.

For this program, dried-blood-spot quality control materials have been developed and analytically validated; computer programs for data analyses have been developed, dried-blood-spot materials have been distributed; reported data have been analyzed; and reports have been developed for these laboratories.

NCEH conducted performance evaluations for HIV antibody testing on dried-blood-spots in Puerto Rico, Australia, Scotland, The United Kingdom, and Canada. Quality control material

has been validated and distributed to assist in determination of HIV seroprevalence among child-bearing women in these countries.

Neural Tube Defects

NCEH provided consultation, training, and analytical support to Beijing Medical University for the CDC/PRC Folate/Neural Tube Defect Study. A paper describing the bloodspot folate method developed for this project was published in AJCN 1997;66:1398-1405.

An NCEH/EHLS scientist in the Molecular Biology Branch is providing consultation and advice to Beijing Medical University (BMU) for their studies to determine the contribution of genetic variants of two folate-metabolizing enzymes, namely methylenetetrahydrofolate reductase and methionine synthase, to the high prevalence of neural tube defects in China. Laboratory training in several laboratory techniques including DNA processing and genotyping was given to Chinese scientists and a functional molecular laboratory was setup at BMU to perform the assays.

Operations Research

In Tanzania IERHP (International Emergency and Refugee Health Program) staff initiated a clinical trial to determine the most effective method to treat moderate anemia in refugee children as part of the CARE-CDC Health Initiative (CCHI).

Outbreak Response

In response to the increased frequency and severity of outbreaks of diethylene glycol (DEG) contaminated medications, such as the Haitian outbreak of acute renal failures from contaminated acetaminophen that caused the death of 99 children, NCEH' s Health Studies Branch (HSB) conducted a DEG workshop in 1997 to address this important public health problem. The objectives of the workshop were: to estimate the potential for DEG contamination of medications; to identify, describe, and recommend examples of various prevention measures that can reasonably be implemented, such as regulations, monitoring procedures, and information/education programs; to identify practical laboratory/screening procedures for detecting and preventing DEG contamination; and to develop recommendations for use in controlling and preventing DEG contamination. Recommendations were made to the World Health Organization, and a manuscript of the workshop proceedings has been written and sent to a publisher.

Pan American Health Organization Cholesterol Standardization Program

SAB provided training and technical assistance to laboratories in Latin America and the Caribbean through a special project with the Pan American Health Organization (PAHO) to establish standardized laboratories in that region for the purpose of providing support for epidemiological studies and national or regional quality assurance programs.

A NCEH laboratory scientist visited San Jose, Costa Rica to evaluate potential laboratories for participation in the program. Recommendations were made to PAHO regarding selection of a laboratory. PAHO has also selected a laboratory in Puerto Rico for participation in the project. Training and standardization of the Costa Rican and Puerto Rican laboratories will begin in 1998.

Post-Emergency Health Services Evaluation & Assessment

In Bosnia and the former Yugoslavia IERHP staff conducted an assessment of relief and rehabilitation efforts in war-torn areas of the region. Staff also conducted an emergency public health assessment and evaluation of USG funded NGOS' relief and rehabilitation efforts in Rwanda. In Zaire, (now Democratic Republic of the Congo) IERHP conducted a health assessment of refugees and internally displaced persons in eastern Zaire and made recommendations for humanitarian assistance and health interventions.

Retrospective Studies

NCEH's Division of Environmental Hazards and Health Effects (EHHE) updated *Death Investigation in the United States and Canada*, a manual for medical examiners, coroners, emergency-response personnel, injury researchers, and other people and organizations concerned with investigating, monitoring, or studying deaths that occur in the United States and Canada.

EHHE also conducted a briefing of the preliminary report of feasibility findings for a proposed thyroid study in the Marshall Islands to representatives from the Departments of Energy, Interior, State, and the Department of Health and Human Services. In late May 1997, the Radiation Studies Branch then presented these same preliminary findings. The proposed study, if conducted, would be the first attempt to conduct a nationwide assessment in the Marshall Islands of the relationship between thyroid disease and radiation exposures from U.S. nuclear weapons tests in the 1940s and 50s.

Toxic Oil Syndrome

In collaboration with the government of Spain, NCEH laboratory scientists continued their search for the etiologic agent involved in the Toxic Oil Syndrome. They completed the analyses of oils conducted by Dan Selivonchick at Oregon State University in Corvallis, Oregon. It was found that two of the oils that were produced closely resembled the source contaminated oils that were produced by the ITH oil refinery in 1981. Not only did these new toxic oils contain specific peaks that have been determined in our lab to be indicative of TOS-causing oils, but they also contained the suite of compounds that have been determined to be present in the ITH causative oil and case-associated oils. NCEH staff traveled to Oregon in September 1997 to assist Dan Selivonchick in the refining process of an aniline-denatured oil and to discuss the analysis results with him.

Also, a method was developed to selectively extract and measure the di-oleylester of PAP in case and control oils using liquid chromatography and a photo diode array detector. The government of Spain requested NCEH assistance in the preparation of such a method to provide a less expensive alternative to mass spectrometric methods. Due to the age and complexity of the oil samples this method was not successful. It was successfully employed, however, in the concentration of new components that were in such small concentrations they could not be measured using our regular LC-MS/MS method in the past. Using this extraction and concentration method, and visual pattern recognition utilizing two-dimensional data display, staff have identified new structures in phenylaminopropanediol (DPAP and MPAP) that are the mono-acyl-bisanlinopropanols (MBAP) and di-acyl-bisanlinopropanols (DPAP). These

compounds have been shown to be present in the ITH source contaminated oil and in the Selivonchick new Toxic oils.

Lastly, using the new data we have gathered from the studies of the past year and previous years, NCEH staff are developing a pattern recognition method with the input of Spanish collaborators to formalize the associations of these new compounds with case-associated oils. This analysis will be completed in 1998.

Toxicants (Organic)

In a study of a Seveso, Italy population, NCEH laboratory scientists found a mean half-life of dioxin in adults to be 8.2 years. Another study to examine the relation between dioxin exposure in Seveso and endometriosis was begun. NCEH laboratory scientists in collaboration with Italian researchers found an altered sex ratio in children born to parents who were highly exposed to TCDD in Seveso. Several hundred additional serum specimens are being analyzed to determine if mother' s or father' s levels of dioxin are more responsible for the altered sex ratio.

The NCEH Environmental Health Laboratory Sciences (EHLS) laboratory analyzed specimens for the measurement of dioxins and related compounds in the blood of chemical workers from The Netherlands. This study is designed to validate the exposure index derived by the International Agency for Research on Cancer in its attempt to correlate dioxin exposure and cancer. Results of this study will be published shortly with data showing that high occupational exposure to dioxins is associated with increased cancer mortality.

NCEH consulted with scientists on a statistically designed study to assess the internal dose level of dioxins and related compounds in the New Zealand general population. They conducted preliminary serum assays to determine background levels of dioxins, furans, and PCBs in New Zealand. 100 samples are scheduled for analysis in 1998.

Another study, funded by the Department of Defense in collaboration with NIOSH, is studying the relationship in Norwegian women between serum levels of dioxins, furans, PCBs, and pesticides and breast cancer. NCEH reported 76 analytes (dioxins, furans, PCBs, and pesticides) in 300 case/control samples. Data is being analyzed by NIOSH. Using the same Norwegian serum bank, a collaborative study with NCI was designed for studying the relationship between serum organochlorine pesticide and PCB levels and multiple cancers. Analyses of these 2000+ serum specimens will begin in 1998.

NCEH scientists collaborated on inter-laboratory comparisons of PCB and chlorinated pesticide analyses. A laboratory at the University of Erlangen (Germany) was the central laboratory for these studies because it is the National Reference Laboratory for Germany. The CDC laboratory met or exceeded all acceptance criteria and received full certification from the German Laboratory. NCEH scientists continue their collaboration for assessing human exposure to organic toxicants with scientists at the University of Erlangen.

NCEH' s biomonitoring laboratory is in the final stages of its collaboration with Odense University and the National Environmental Research Institute in the analysis of umbilical cords taken from birthing mothers in the Faroe Islands. Data will be used to assess neurobehavioral cognitive effects of in-utero exposure to polychlorinated biphenyls, mercury, and organochlorine pesticides. NCEH completed the analyses of about 1400 serum specimens from a Danish serum

bank for examining the relationship between serum levels of polychlorinated biphenyls and organochlorine pesticides. Data are being analyzed. Other collaborative studies between NCEH and an Odense University professor are being examined.

NCEH' s biomonitoring laboratory collaborated with the Pan American Health Organization and the Mexican Public Health Agency to investigate exposure of gas station attendants and office workers in Mexico City to volatile organic compounds, including methyl tert-butyl ether. These results showed that office workers in Mexico City are exposed to elevated levels of volatile gasoline components likely due to their daily commute. Follow-up studies to evaluate this hypothesis are planned for 1998.

Toxicology Training and Consultation

The NCEH toxicology laboratory received many requests for personal training and consultation, and many honors during 1997. Dioxin training in methodology was provided to nine environmental health research groups from Italy, Japan, Slovakia, and Sweden. Training in pesticides and polychlorobiphenyls was given to nine environmental health research groups in Sri Lanka, Italy, Mexico, Sweden, Russia, Faroe Islands, and Spain. Studies involved breast cancer, cryptochism, childhood development, altered sex ratio, and food contamination.

A NCEH laboratory scientist received an honorary doctorate degree in environmental chemistry from Stockholm University. NCEH laboratory scientists were members of the International Advisory Committee on Environmental Analysis, International Meeting Board for Dioxin and were keynote and symposium speakers on environmental topics in Canada, Taiwan, Sweden, Japan, and Guaiacol Island.

Trace and Organic Elements

NCEH produced a workshop at an international trace elements meeting in Canada. The workshop content included graphite furnace atomic absorption spectroscopy, quality assurance, inductively coupled plasma emission-mass spectrometry, and chemical speciation.

WHO Collaborating Center for Reference and Research in Blood Lipids

The Collaborating Center offered a WHO-CDC Lipid Standardization Program by making available reference materials to international laboratories performing WHO-sponsored investigations or participating in collaborative international and national cardiovascular research projects; performed lipid reference analyses for WHO-sponsored international scientists, national laboratories, and WHO Regional Lipid Standardization Laboratories; consulted by letter and with visitors from international laboratories and served as the international repository for the WHO-IFCC Reference Reagents for apo AI and apo B.

The WHO-CDC Blood Lipids International Standardization Program served 51 international lipid laboratories in FY 1996. These included five serving as members of the CDC Cholesterol Reference Method Laboratory Network (CRMLN): The University Hospital Dijkzigt, Rotterdam, the Netherlands; Osaka Medical Center for Cancer and Cardiovascular Diseases, Osaka, Japan; Institute of Biochemistry, Glasgow Royal Infirmary, Glasgow, Scotland; the Canadian Reference Laboratory, Vancouver, Canada; and San Raffaele Hospital, Milan, Italy.

The Lipid Reference Laboratory (LRL), University Hospital "Dijkzigt", Rotterdam, The Netherlands, performs instrument and reagent evaluation for manufacturers using the CRMLN protocols for certification of manufacturers. The LRL also cooperates with the Dutch EQA Society 180 laboratories participating to set target values on calibrators and controls and to develop and select candidate reference materials and controls for total cholesterol and HDL cholesterol.

Osaka Medical Center for Cancer and Cardiovascular Diseases (OMC), Osaka, Japan is the support center for lipid standardization in Japan. OMC provides lipid reference services in a domestic standardization program of Japanese clinical laboratories performing TC, HDL cholesterol, and TG. This program does not issue certificates. OMC also provides standardization for three epidemiological studies in Japan. In 1997, this laboratory certified twelve Japanese manufacturers of TC diagnostic products. In addition, 44 clinical laboratories were certified for TC through the CRMLN clinical laboratory program.

Institute of Biochemistry, Royal Infirmary, Glasgow, Scotland serves as the reference center for lipid disorders in Scotland and as a service laboratory for the Infirmary and surrounding physicians. Network activities include promotion of standardization efforts, providing sera with assigned values for calibration, and providing reference values for materials used in several national QC and standardization schemes.

Canadian Reference Laboratory (1996) Ltd. (CRL), Vancouver, Canada: This laboratory was established to serve the needs of the clinical chemistry community in Canada and therefore serves as the support center for standardization of lipid measurements in Canada. The CRL operates a blinded external proficiency testing program that uses fresh serum pools with values assigned by the reference methods for TC and HDL, and a CDC-standardized method for TG.

San Raffaele Hospital Reference Laboratory, Milan, Italy has organized an external QA scheme for the GISSI Prevention Project. About 100 laboratories participate in the program. San Raffaele Hospital Reference Laboratory prepares the samples, provides target values for total cholesterol and HDL, and evaluates the data. In addition, six clinical laboratories were certified for TC through the CRMLN clinical laboratory program.

The Programa de Evaluacion Externa de Calidad, La Plata, Argentina has been provided consultation to help them establish their Abell-Kendall cholesterol method with the goal to become a member of the CRMLN.

The Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic, which serves as a regional standardization center was provided with CDC reference serum pools to assist in standardization efforts.

The WHO Center collaborated with the Pan American Health Organization (PAGO) to develop a model system in the Latin American and Caribbean Countries to produce valid lipid measurements necessary for developing and implementing cardiovascular disease prevention programs. A NCEH laboratory scientist accompanied PAGO officials to San Jose Costa Rica to evaluate laboratories being considered to serve as the central laboratory for the CARMEN project and also as the lipid reference center for Costa Rica and Puerto Rico.

In its role as the WHO Collaborating Center for Reference and Research in Blood Lipids, the NCEH Lipid Reference Laboratory provided confirmatory analyses for reference materials prepared by the following laboratories for the purpose of assuring the quality of the reference materials used in their research and standardization efforts: The Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic and Osaka City University Medical School Osaka, Japan.

National Center for Health Statistics (NCHS)

The National Center for Health Statistics (NCHS) maintains international health statistics programs with more than twenty countries including bilateral agreements. These programs consist of cooperative ventures and collaborative research on analytical and methodological issues, technical assistance and consultation, training and information exchange, and liaison with multi-national agencies. In addition, NCHS sponsors international meetings and symposia, and contributes to other international forums through scientific articles and presentations. Through these efforts, NCHS seeks to improve the availability and quality of health data in both the United States and other countries.

Data Reference Guide

NCHS' s seventh edition of the International Health Data Reference Guide was published in June 1996. The purpose of this project is to provide information on the availability of selected national, vital, hospital, health manpower, and population-based health survey statistics from government and official agencies of respective countries. It is also used to support the World Health Organizations' s goal of developing a common basis for international data comparison. The eighth edition of the guide is being prepared and will be published in 1998.

Disease Classification and Survey Techniques

NCHS is designated as the World Health Organization' s Collaborating Center for Classification of Diseases for North America. The Center continued to directly support the World Health Organization (WHO) in worldwide health statistics activities by promoting domestic and international development and use of the International Classification of Diseases and the International Classification of Impairments, Disabilities, and Handicaps. NCHS has continued to serve as the WHO Collaborating Center for Health and Nutrition Examination Surveys, providing assistance in complex health survey design and health examination data collection and analysis.

International Collaborative Efforts (ICEs)

NCHS' s international research program in health statistics is carried out in collaboration with other countries and with other agencies of the Department of Health and Human Services. An important part of this research is carried out through International Collaborative Efforts (ICEs), which bring together domestic and foreign experts to focus on specific health issues of mutual interest in the participating countries. Research findings from these projects are used to provide guidance to domestic and international health programs and to improve health statistical activities of NCHS. Current topics included in these collaborative research projects are studies

of health and health care of the elderly, and injuries, and automated classification of cause of death.

Activities for the ICE on Aging II are under development. ICE Aging II is designed to build on the experience of the ICE on Aging I in the areas of functional disability and institutional long term care (LTC), to use the ICE on Aging I international network of 20 researchers, and to collaborate with and strengthen partnerships with other international networks interested in disability and LTC of the aging.

The ICE on Injury Statistics planning meeting was held in London, England in September 1997 to outline the upcoming ICE on Injury Statistics symposium to be held in Amsterdam, May 1998. Ongoing projects, such as, the international inventory of injury data systems, a glossary of terms, and the analysis of mortality statistics will be updated and new projects (for example, the transition severity scores to a system based on ICD-10) will be presented. In addition, the ICE will take up the longer term tasks of understanding the injury mortality and morbidity certification processes, and how they impact the comparability of statistics.

NCHS continued its International Collaborative Effort in Automating Mortality Statistics activities. The next planning committee meeting will be held in 1998, and a full ICE meeting in 1999. The proceedings of the 1996 meeting will be published early 1998.

NCHS staff provided briefings to 87 visitors from 16 countries during FY 97: 60 visitors from Asia Pacific, 4 visitors from NIS, 13 visitors from Europe, 9 visitors from South America, and 1 visitor from Africa.

National Center for HIV/AIDS, STD, and TB Prevention (NCHSTP)

HIV/AIDS

The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that worldwide 17 million persons have been infected with HIV since the onset of the pandemic and each day 6,000 additional persons become infected. UNAIDS also estimates that by the year 2000, approximately 10 million children will have been orphaned because their parents died as a result of HIV infection. Many of the developing countries severely affected by the epidemic lack the research capacity, the public health infrastructure, and the trained and experienced manpower necessary to respond appropriately to the epidemic.

Through collaborative agreements with the governments of Côte d'Ivoire (Projet RETRO-CI) and Thailand (HIV/AIDS Collaboration), National Center for HIV, STD, and TB Prevention (NCHSTP), Division of HIV/AIDS Prevention (DHAP) participates in studies designed to increase our understanding of the epidemiology of HIV-1 and HIV-2 infections and to evaluate intervention methodologies in the host country and the United States. In addition, short-term assistance is provided to other affected countries, either directly, or at the request of WHO, the U.S. Agency for International Development (USAID), the World Bank, or other international organizations.

Projet RETRO-CI

Projet RETRO-CI (which stands for Retro Virus) in Côte d'Ivoire is an HIV/AIDS epidemiologic research project located in Abidjan, Côte d'Ivoire. It is a collaborative project between the CDC and the Republique de Côte d'Ivoire, Ministry of Health and Social Affairs. Projet RETRO-CI also works in collaboration with two other public health institutions in Europe. A broad spectrum of epidemiologic research has been conducted at Projet RETRO-CI since its inception in 1988. The research agenda is now dominated by clinical trials of interventions to prevent transmission of HIV and to reduce HIV-associated mortality. The research has resulted in over 50 scientific publications and 100 presentations at international scientific conferences.

This research has served to (1) define the magnitude of the HIV/AIDS epidemic in Côte d'Ivoire and to describe which subpopulations have been most affected; (2) describe the clinical manifestation of HIV-1 and HIV-2 infections; (3) study in detail the modes of transmission and transmissibility of HIV-1 and HIV-2 by heterosexual, blood product, and mother-to-child routes; (4) define causes of death in HIV-infected persons; (5) study the response to therapy in HIV-infected patients with tuberculosis; and (6) study the laboratory serologic diagnosis of HIV-1 and HIV-2 infections.

HIV/AIDS Collaboration (HAC)

The objective of the HIV/AIDS Collaboration (HAC) is to conduct research and perform related activities pertaining to HIV infection and AIDS in Thailand, to improve understanding of the disease and the dynamics of its spread in the country, and to provide a scientific basis for the development, planning, and monitoring of intervention programs.

The HAC has conducted epidemiologic and laboratory research to examine maternal-infant HIV transmission, heterosexual HIV transmission, HIV transmission among injecting drug users, HIV transmission via blood, the molecular epidemiology of HIV in Thailand and Asia, the clinical pathogenesis of HIV infection, the interaction of HIV transmission with tuberculosis, and tuberculosis drug reactivity and resistance. Increasingly the research agenda is oriented toward evaluation of interventions to prevent HIV transmission. The research has resulted in over 25 scientific publications and 75 presentations at international scientific conferences.

HIV Variant Project

NCHSTP, in collaboration with the National Center for Infectious Diseases (NCID), has conducted international surveillance of the genetic diversity of HIV. This investigation has involved establishing research collaborations in numerous countries throughout the world. Research conducted to date has demonstrated that some HIV diagnostic test kits used in the United States are not able to detect some of the divergent strains of HIV that have been identified.

Since atypical and divergent strains of HIV have been found throughout the world, including a recent report of HIV-1 Group O in the United States, it is important that active surveillance for these strains be continued. HIV diagnostic technology must be continually evaluated as well and,

as necessary, modified to ensure that tests used in this country are able to detect all the HIV strains in circulation.

Sexually Transmitted Diseases

The expanding global epidemic of HIV/AIDS has stimulated growing international interest in the prevention and control of other sexually transmitted diseases (STDs). The Division of STD Prevention (DSTDP), NCHSTP, has increasingly been called upon to provide technical expertise to ministries of health and international organizations on STD prevention and control.

In FY 1997, DSTDP staff continued to provide both short and long-term technical assistance in support of STD prevention in developing countries. Areas of technical assistance provided to recipient countries included: (1) assessing STD service delivery; (2) identifying STD/HIV operational and behavioral research issues; (3) building infrastructure; (4) developing and strengthening STD surveillance; (5) planning STD prevention program strategies; and (6) providing continued support for ongoing collaborative STD research and prevention projects between CDC and host governments.

Bolivia

During FY 97 the Division of STD prevention (DSTDP) expanded its STD/AIDS control project to 5 of the 9 health districts in Bolivia. Also during FY 97, DSTDP provided technical support to Bolivian Ministry of Health (MOH) personnel for the preparation of 10 presentations on project activities at the Panamerican Congress on STDs/ HIV in Lima, Peru.

Central African Republic

DSTDP oversaw the orientation and in-country preparation for a new CDC STD resident advisor. They also prepared an outline for a national STD strategy and 12-month work plan for bringing USAID-funded activities to scale prior to the Project Anticipated Completion Date (PACD). During these activities, CDC staff prepared two manuscripts using a patient database (n=5280) from two enhanced STD service sites and presented the partner notification results at an international conference.

Indonesia

During FY 97 DSTDP helped complete the first sexual behavior survey by the University of Indonesia. The target populations for this survey included female sex workers, sailors/seaport laborers, factory workers, truck drivers, and high school students. CDC staff also collaborated on a baseline STD prevalence survey in female sex workers done by the Indonesian Epidemiology Network and a STD prevalence survey in low-income family planning patients in North Jakarta done by The Population Council.

Other surveys completed included a baseline STD service delivery survey in CDC-AIDSCAP-supported clinics. During FY 97 CDC assisted in the upgrading of the laboratory and clinical capacity of CDC-AIDSCAP-supported clinics and in a first round training on STD syndromic management for health care providers. CDC also assisted in an workshop on HIV Prevalence Estimates and AIDS Case Projections in Jakarta.

Mali

In Mali DSTDP provided technical assistance to develop a detailed training plan and budget for Training of Trainers in the use of STD syndromic algorithms. DSTDP personnel also developed the training materials for the course. National STD treatment policy/guidelines were developed for health center and referral center levels which were a product of U.S., Canadian, and Malian collaboration.

South Africa

DSTDP worked with the Institute of Urban Primary Health Care in Alexandra Township on STD prevention activities. CDC collaborated with the Institute to develop a manuscript on formative research on sexual behavior of youth (published in Social Science & Medicine). CDC and the Institute also presented formative research on attitudes toward partner notification for STDs at international conferences and initiated randomized trial of two partner notification strategies for STDs. During FY 1997 DSTDP initiated discussions with MOH, USAID and others regarding the possible development of an STD Research Station in South Africa.

Uganda

DSTDP provided technical support to USAID/Uganda and AMREF/Uganda on the midterm evaluation of the impact of syndromic training of medical officers, medical assistants, midwives and nurses provided by the USAID-funded DISH Project.

Tuberculosis

Increasing morbidity and mortality resulting from tuberculosis (TB) has been reported worldwide. According to WHO estimates, if global control of TB is maintained at the 1990 level, an estimated 90 million cases of TB and 30 million deaths will occur this decade. HIV infection is the single most important risk factor for the world-wide resurgence in tubercular disease. HIV activates TB in persons with both long-standing and newly acquired Mycobacterium tuberculosis infection, accelerating the breakdown from infection to disease.

Because over 90 percent of persons with TB throughout the world reside in resource-poor countries, expanding our knowledge of the relationship between epidemic TB and epidemic HIV disease in developing countries is critical to the global control of TB. For example, the Division of Tuberculosis Elimination (DTBE), in NCHSTP, continues to provide ongoing training and technical assistance to the Republic of South Africa in an effort to strengthen its TB infrastructure and to enhance the understanding of the relationship between TB and HIV.

During 1997, DTBE was also involved in several activities in Botswana. DTBE received approval to conduct a study to assess the prevalence of malabsorption of TB medications in HIV-infected patients. These findings will be useful internationally in determining the adequacy of current regimens for HIV-infected patients. Another study is assessing levels of infection and disease in the pediatric contacts of adult smear-positive and smear-negative TB patients to help highlight the usefulness of contact tracing of infectious and presumably non-infectious patients in developing country settings and determine whether DOPT can be administered effectively in the context of patient treatment. An additional study is evaluating the rate of culture positivity and the role of other pulmonary pathogens in HIV infected persons to be used in the

development of algorithms designed to improve the diagnosis of TB in low income countries with high HIV prevalence. Other studies are examining community transmission and community care of TB, the importance of TB as a cause of unrecognized pulmonary pathology among deceased HIV-infected patients, and TB drug quality screening for developing countries.

DTBE is also very involved in the National Drug Resistance Surveillance Program in Mexico. Mexico is estimated to have 40,000 new cases of TB each year; an unknown percentage of these cases are caused by *Mycobacterium tuberculosis* (MTB) resistant to multiple drugs. The Mexican government has requested assistance from the CDC in the implementation of an initial survey and the development of an ongoing national surveillance system. The survey has three objectives: 1) to obtain a population-based sample of isolates from various Mexican states 2) to determine drug susceptibility patterns, and 3) to use the survey as the foundation for establishment of an ongoing surveillance system for drug resistance. Accomplishments to date include: 1) completion of the development and implementation of the protocol in three states 2) the training of over 500 key health care personnel (from the major health institutions) in three states 3) improvement of bi-national cooperation in TB control on a national and state level 4) collection of data from 3 states 5) presentation of preliminary data at Mexico's national infectious disease meeting. Results are currently being prepared for publication in the MMWR.

The overall purpose of this project is to direct resources to areas of need and to develop effective channels of communication and cooperative working relationships among health professionals managing tuberculosis control and prevention programs on both sides of the Texas-Mexico border. Resources are being utilized for diagnostic services, outreach services for directly observed therapy and contact investigations, treatment for tuberculosis cases and contacts, education and training for health professionals, the development of materials for educating the public and providing them with information about tuberculosis, and other public awareness activities.

National Center for Infectious Diseases (NCID)

Infectious diseases are the leading causes of death worldwide. The National Center for Infectious Diseases (NCID) is dedicated to the prevention of illness and death caused by infectious diseases in the United States and worldwide. The Center accomplishes its mission by focusing its resources in five areas: 1) epidemic assistance; 2) surveillance of infectious diseases; 3) epidemiologic and laboratory research; 4) prevention and control strategy development, implementation, and evaluation; and 5) training, health communication and consultation programs in cooperation with other groups, agencies, and organizations. NCID coordinates and collaborates with CDC centers, other Federal agencies, academic institutions, and international organizations in an effort to reduce the incidence of infectious diseases.

The Center operates around the world in all bacteriologic, virologic, parasitologic, and clinical infectious disease disciplines, and in several interdisciplinary areas, including opportunistic infectious diseases in HIV-infected patients, infectious diseases in out-of-home child-care settings, foodborne and waterborne diseases, tropical infectious diseases, and chronic infectious diseases.

Increases in the last two decades of new, reemerging and drug-resistant diseases pose a serious threat to the U.S. and world populations. In recognition of the fact that the health of the

American people is inextricably linked to the health of people in other nations, NCID developed a plan, "*Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States*." This plan, produced in consultation with many disease prevention partners around the world, is now in the implementation phase. Continued international partnerships, with the World Health Organization (WHO) and others, will be essential in carrying out this global strategy to ensure "healthy people in a healthy world."

In addition to the staff located in the United States, NCID staff are assigned to six field locations. In Guatemala City, Guatemala, a unit of NCID's Division of Parasitic Diseases conducts research and trains personnel on control of parasitic diseases in Central America. NCID, in conjunction with other agencies, undertakes field and laboratory studies on malaria and other diseases in Nairobi, Kenya. NCID collaborates with local agencies to develop community education and control programs for Lassa fever in the Guinea. NCID operates overseas offices in Frankfurt, Germany, and Bangkok, Thailand. Additional NCID personnel are stationed in overseas locations. NCID staff also assists WHO in Geneva to coordinate international efforts to prevent and control infectious diseases.

NCID operates the Viral and Rickettsial Diseases Laboratory, established in 1988. This laboratory represents the best of modern biocontainment concepts, incorporating personal safety in every aspect of the laboratory construction and design. Here, researchers characterize deadly viruses for which there are currently no cures. These viruses may become epidemic in some areas of the world. For example, it is estimated that there were more than 300,000 cases per year of Lassa fever in West Africa. Known strains of other deadly viruses may reemerge unexpectedly as occurred with Ebola virus in Zaire in 1995 and Gabon in 1996, or new strains may emerge as occurred in June 1993 in the American Southwest where hantavirus pulmonary syndrome (HPS) appeared. NCID cooperates closely with WHO so that knowledge gained from research can be quickly disseminated worldwide.

NCID actively participates under cooperative agreements with China and Russia. Under the People's Republic of China (PRC) agreement, scientists from NCID collaborate with Chinese scientists in research on influenza, rotavirus, Japanese encephalitis, and other arboviruses, hepatitis, plague, dengue and Lyme disease. Scientists from NCID collaborate in research with Russia on polio, influenza, hepatitis, hantaviruses, and other infectious diseases.

During FY'97 NCID conducted collaborative research activities with more than 66 countries. NCID also hosts guest researchers from foreign countries. During FY'97, NCID hosted 438 guest researchers from 52 different countries to collaborate in research and prevention activities. In addition, NCID briefed 210 foreign visitors from 58 countries on programs in their specific areas of interest. Thirty-one of the- World Health Organization Collaborating Centers are located in NCID.

Child Survival (CS) Team

The CS Team provided short-and long-term technical assistance to ministries of health in the Central African Republic, Ghana, Kenya, Nicaragua, Nigeria, Malawi and Morocco, and to WHO, UNICEF, AID and private voluntary organizations in building effective and sustainable child survival programs. Assistance focused on implementing the WHO-UNICEF Integrated Management of Childhood Illness (IMCI) guidelines in health facilities, and operations research

to identify effective strategies to support implementation of the IMCI guidelines. In addition, the CS team provided assistance to ministries of health to strengthen cross-cutting services, such as training, supervision, and health information systems. CS Team members provided technical assistance to UNICEF and WHO in developing global indicators for measuring progress towards child survival program objectives.

Congenital Syphilis

The staff of the Division of AIDS, STDs, and TB Laboratory Research, in collaboration with the Division of STD Prevention (DSTDP), National Center for HIV, STD, and TB Prevention (NCHSTP), the Pan American Health Organization (PAHO), and Mothercare, studied the incidence of maternal and congenital syphilis in Bolivia. Rates of syphilis in the mothers tested were 4%. Recommendations were made for treatment of the mothers to prevent congenital syphilis.

Evaluation of the IgM Western blot, using data from the Oakland study, the Grady study, and samples from Bolivia indicated that the sensitivity of the test was 87%, while specificity was 93%. The objective was to be able to identify infants who need 10 days of hospitalization and treatment versus those who can be given a single dose of penicillin and sent home. For this same population, the IgM enzyme immunoassay (EIA) was only 27% sensitive and the 19S fluorescent treponemal antibody absorption (FTA-ABS) test was 54% sensitive (19S FTA-ABS was not done on the Bolivia infants).

Diarrheal Diseases

A NCID/DBMD Water Vessel Project, a major new community intervention project in Latin America, is growing in size and scope. This project is now in its 4th year. In Bolivia, a multi-village intervention trial began this fall, testing the ability of social marketing program to encourage the villagers to buy the water vessel, now in production in Bolivia, and to use a standard disinfectant to make their water potable. We have already determined that the intervention, if adopted, can lower the diarrheal illness rate by 40% in a household. We will be looking for impact beyond diarrheal illness prevention: as part of this intervention, the impact on pediatric seroprevalence of antibodies for *Helicobacter pylori* will be measured. A baseline survey of antibodies was conducted in the summer of 1996 in the study area. During the summer, FDDB also tested a new application of the water vessel/disinfectant, converting it to a hand washing platform by placing a soap dish on it. This field test was done among 80 street vendors of Guatemala City, and was supported by the Proctor and Gamble Company, in collaboration with the Institute for Nutrition of Central America/Panama, and the University del Valle. The street vendors eagerly adopted the intervention. They prepared clean water, and used that to make their beverages. The contamination of water and beverages was significantly less in the intervention group of street vendors, and several expressed a desire to sell the water vessel itself. This new application could be widely used in the developing world.

Human Immunodeficiency Virus

The primary goals of the global HIV variant study project are international surveillance for HIV variants and genetic characterization of regional epidemics. The program, supported by staff

from NCID/DASTLR, provides for continuing evaluation of HIV diagnostic technology to determine modifications necessary to ensure that tests used in this country are able to detect all the HIV strains in circulation, both to maintain the safety of the blood supply in the United States and to facilitate individual diagnosis. To date, genetic analysis of HIV variants has been conducted in the following countries: Bahamas, Brazil, Cameroon, Central African Republic, China, Honduras, Kenya, Lebanon, Morocco, Nigeria, Switzerland, Trinidad, US/Puerto Rico, Uruguay, and Zaire. Major collaborations for variant surveillance have thus far been established with the Uganda Virus Research Institute (UVRI) (Uganda), Projet RETRO-CI (Côte d' Ivoire), KEMRI (Kenya), and HAC (Thailand). NCID/DASTLR staff, in collaboration with UVRI, has undertaken a population-based characterization of the urban and rural HIV epidemics in Uganda. The study involves surveillance for divergent strains and development of an epidemiologic profile of the epidemic which incorporates genetic subtype data. This project received the 1997 HHS Secretary' s Award for Distinguished Service.

Human Monkeypox Virus

Human monkeypox is a smallpox-like disease caused by the orthopoxvirus monkeypox virus which has enzootic circulation in several animal species including monkeys and squirrels in the tropical rainforest region of Central and West Africa. Epidemiologic surveillance, mainly in eastern Zaire in the late 1970s to early 1980s, indicated ~400 cases affected out of a population of several million, including 70% of cases from sporadic animal-to-human transmission by handling infected animals and 30% of cases from subsequent human-to human-transmissions. The disease has been considered very rare and transmission among humans was not sustained, largely because a significant portion of the population had received smallpox vaccine, which also protects against monkeypox. Beginning in February 1996 to the present time, an extraordinary rise in the rate of human monkeypox infections (about 200 cases suspected in a population of about 15,000) was noted in the Katako-Kombe region of central Democratic Republic of Congo (formerly Zaire) where the residual (pre-1980s) smallpox vaccination status of the population is about 15%. Epidemiologists from branches within the NCID/DVRD, the WHO, Médecins Sans Frontiérs, and Congo Health Ministry have been collaborating on surveillance in the region, and NCID/DVRD, which includes the WHO Collaborating Center for Smallpox & Other Poxvirus Infections, has been performing serologic and virologic studies on samples from the area to supplement surveillance activities.

Human Papillomavirus and Cervical Cancer

Human Papillomavirus (HPV) has been etiologically linked to the development of cervical cancer and its precursor lesions since the late 1980s. HPV has been defined as an emerging infection since it is one of the prototype viral infections that leads to a chronic disease such as cervical cancer. Cervical cancer is the second most common cancer among women (12% of cancers worldwide).

Cervical cancer represents a unique women' s health problem on the US-Mexico border. Women of Hispanic or Native American descent in this region have a high underlying risk for disease, they lack ready access to preventive medical services, and a large proportion of the population freely migrates around the border. The border states of Arizona (US) and Sonora (Mexico) have identified cervical cancer as a priority public health problem. They have formed a Binational Cervical Cancer Working Group and initiated a pilot study of cervical cancer, cervical dysplasia, Pap smear screening, and female genital infection with HPV and *Chylamydia trachomatis.* In

July 1997, DVRD scientists were invited to review the pilot study, provide consultation, and explore the possibilities for long term collaboration. The Binational Cervical Cancer Working Group has invited continued participation by CDC collaborators on this project.

Cervical cancer is very prevalent in the People' s Republic of China and significant differences exist between the prevalence of disease in different provinces (40-fold). NCID/DVRD has initiated a collaboration with Dr. Chunyi Zang at the Second Clinical College of Bethune Medical Sciences University in ChangChun. HPV type distribution in three provinces with very different cervical cancer prevalences, and the characterization of the immune response to HPV in recently infected individuals will be initiated through this collaboration in FY98.

Influenza

Influenza viruses undergo rapid and unpredictable antigenic variation requiring frequent changes in vaccine formulation. The Influenza Branch of DVRD works with the WHO international network of collaborating laboratories to detect new antigenic variants of influenza that may signal a need to update the formulation of the influenza vaccine. This extensive laboratory surveillance network monitors the emergence and spread of new epidemic and pandemic strains of influenza and to provide influenza isolates useful for studying the antigenic and genetic evolution of influenza viruses. In 1997, NCID/DVRD in collaboration with WHO, the Food and Drug Administration, and others identified the A/Bayern/07/95 virus to replace the A/Texas/36/91 as the influenza A(H1N1) strain in the 1997-1998 trivalent influenza vaccine for the United States.

NCID/DVRD as a WHO Collaborating Centre for Influenza, performed antigenic characterization, RFLP (restrictions fragment length polymorphism) and antiviral resistance analysis on 819 isolates from a variety of countries.

Kits of diagnostic reagents were also provided to all WHO National Influenza Centers. Regular exchanges of information, reagents and viruses were undertaken with the other three International Reference Centers in Australia, Japan and the United Kingdom.

Lymphatic Filariasis

Lymphatic filariasis is a parasitic disease that is spread by mosquitoes. A total of 120 million people in 73 tropical and sub-tropical countries are affected; 40 million have swelling (elephantiasis) of the leg (mostly in women) or swelling of the genitals (hydrocele, in men). Infected individuals who show no outward signs of the disease still suffer from damage to their lymphatic and renal systems. One billion individuals - 1 out of every 5 people on earth - are at risk of developing the disease. Affected individuals, most of whom are poor, suffer great physical disability and disfigurement, social isolation, and decreased economic productivity. The WHO ranks lymphatic filariasis as the second leading cause of disability worldwide. While actual financial costs are difficult to determine, costs in India alone are estimated at more than $1.5 billion annually. NCID/DPD has joined WHO as a major partner and was recently designated as a WHO Collaborating Center for Control and Elimination of Lymphatic Filariasis in the Americas. In this capacity, we provide technical support and assistance in filariasis control and elimination activities. We are developing a reference library and geographic information system for lymphatic filariasis in the Americas, and we work closely with WHO, PAHO, and non-governmental organizations to facilitate filariasis elimination globally.

Malaria

Malaria remains one of the most prevalent and important infectious diseases worldwide, with 300 to 500 million clinical illnesses and 2 to 3 million deaths annually. NCID/DPD carries out a multifaceted program of malaria research at its field stations in Kenya and Guatemala and by Atlanta-based staff on short-term assignment abroad. Efforts emphasize evaluating improved methods of malaria prevention and control in pregnancy, understanding the natural history and prevention of severe anemia in children, studying immunological aspects of infection, developing and testing potential vaccines, and characterizing malaria mortality at the community level. Assistance is provided to some 20 countries on insecticide and antimalarial resistance testing, improving malaria diagnostic capabilities, and training malaria control program workers in sub-Saharan Africa in monitoring and evaluating malaria control activities.

Other Sexually Transmitted Diseases (STDs)

Sexually transmitted diseases (STDs) represent a costly and prevalent public health problem throughout the world. Although syphilis, chlamydia, and gonorrhea have devastating effects on the health of women and children, the role of STDs in the susceptibility to and transmission of human immunodeficiency virus (HIV) appears to be increasingly important. NCID/DASTLR supplies expertise in training, laboratory and clinic set up and standardization, and clinical and laboratory diagnosis of the bacterial STDs.

NCID/DASTLR collaborates with the International Health Program Office, NCHSTP/DSTDP, and NCHSTP/Division of HIV/AIDS Prevention--Surveillance and Epidemiology (DHAP-SE), USAID, the National Cancer Institute (NCI), the WHO, PAHO, and various nonprofit, private sector organizations to conduct surveillance studies and to evaluate, develop, and improve methods for the diagnosis and control of STDs in medically underserved populations.

Syphilis

NCID/DASTLR staff provides laboratory assistance in several foreign countries by evaluating diagnostic tests, collaborating with epidemiologic investigations, and providing training and consultation. In addition, reference reagents were supplied to one country. As part of a multinational project, NCID/DASTLR provides proficiency testing for 62 laboratories in 48 countries. In FY 97, DASTLR also consulted with reagent manufacturers from two countries on standardization methods.

Tuberculosis

NCID/DASTLR established the Mycobacteriology Laboratory as a WHO supranational reference laboratory and participated in the WHO Global Surveillance Program on Anti-tuberculosis Drug Resistance. The NCID Mycobacteriology Laboratory served as the reference laboratory for project activities in Latvia and Mexico.

National Center for Injury Prevention and Control (NCIPC)

In the United States, injuries are recognized as a leading cause of death among all age groups. Injury is the leading cause of death from the first year of life to age 34, causes the loss of more working years of life than all forms of cancer and heart disease combined, and accounts for approximately $180 billion US dollars every year in medical and indirect costs. Too often, injuries are overlooked as a public health issue outside of the industrialized world. Injuries claim more than 3.2 million lives a year worldwide -- with three-quarters of these deaths occurring in developing countries. Rising rates of injury-related morbidity and mortality are one consequence of epidemiologic and demographic transitions, industrialization, and urbanization. The National Center for Injury Prevention and Control (NCIPC), was established in 1992 to plan, direct and coordinate a national program designed to prevent death and disability and to reduce medical costs caused by injury. The Center' s mission includes the prevention of injuries and deaths caused by violence and abuse, the prevention of unintentional injuries, and coordination of acute care, rehabilitation research and prevention of disabilities among injured persons.

The NCIPC at the Centers for Disease Control and Prevention injury prevention program is based on a comprehensive, interdisciplinary approach:

- identifying the extent of the problem and who is at risk
- conducting research on causes of injury and risk factors that can be modified
- designing prevention programs that address what puts people at risk for injury
- evaluating what works

NCIPC' s Division of Violence Prevention supports interventions and evaluations of those programs that change attitudes about violence and give young people skills in resolving conflict resolution conflict nonviolently, including: mentoring, peer mediation, training in conflict resolution in social skills, and public awareness campaigns. The Division of Unintentional Injury Prevention has shown that public information programs, promotion of behavioral change, changes in legislation and regulation, and advances in engineering and technology prevented an estimated 250,000 motor vehicle related deaths in the United States since 1966. The Division of Acute Care, Rehabilitation Research, and Disability Prevention works to reduce the impact and severity of injuries by improving trauma care and rehabilitation services and systems.

CDC has become an internationally-recognized leader in the field of injury prevention and control. The strength of worldwide success in injury control depends on working together with our international partners and share our knowledge of what works in epidemiology, prevention, acute care, rehabilitation, information gathering and dissemination, and training. NCIPC has been an active participant in injury prevention and control in the international arena.

National Immunization Program (NIP)

The National Immunization Program (NIP) was created in 1993 to develop and lead intensified immunization efforts in the United States. NIP contains the world' s largest concentration of epidemiologists and public health workers devoted to the control of vaccine preventable diseases. During 1997, NIP lent its expertise to vaccine-related projects and meetings in 53 countries, working in close collaboration with the World Health Organization (WHO), United Nations Children' s Fund (UNICEF), Pan American Health Organization (PAHO), U.S. Agency for International Development, Rotary International, and other international agencies.

Polio Eradication

During 1997, NIP provided technical and programmatic support to WHO in accelerating progress towards the goal of global polio eradication by the year 2000. NIP continues to support WHO, and UNICEF by the assignment of epidemiologists to the Expanded Programme on Immunization. The Program continued supporting the assignment of epidemiologists or technical officers to Cambodia, China, Bangladesh, Ethiopia, Ghana, India, Indonesia, Kenya, Philippines, Yemen, Zimbabwe, to WHO headquarters in Switzerland, and to all six of the WHO Regional offices. New assignments of epidemiologists were supported in Egypt, Pakistan, and Ukraine.

NIP provided short-term technical assistance to several republics of the New Independent States for Operation MECACAR, a special initiative to conduct National Immunization Days simultaneously in 18 contiguous countries of Europe, Asia, and the Middle East. NIP staff also provided assistance to Pakistan to investigate the cause of continuing high levels of polio transmission, and to make recommendations for eradication.

NIP continued a cooperative agreement with UNICEF for the provision of oral polio vaccine and operational support for supplemental immunization activities to eradicate polio in polio-endemic countries. Through this agreement with UNICEF, more than 300 million doses of oral polio vaccine were provided to a total of 62 countries.

Measles Elimination

NIP participated in an increasing number of international measles projects and meetings, reflecting a gradually developing consensus that the global eradication of measles is feasible and that a measles eradication initiative would help sustain efforts to eradicate polio. NIP continued the assignment of an epidemiologist to PAHO headquarters in Washington, D.C., and provided short-term assistance in China, Qatar, and the Philippines. NIP also provided technical assistance to the Eastern Mediterranean, European, and Western Pacific regions of WHO.

In August 1997, CDC, PAHO, and WHO co-sponsored an international meeting to review national and international measles elimination activities and to consider the technical feasibility of global measles eradication. The principal conclusions and recommendations were: (1) that the global eradication of measles is feasible using currently available vaccines; and (2) a goal of global measles eradication should be established with a target date between 2005-2010.

Diphtheria

NIP epidemiologists continued to provide diphtheria-related technical assistance to Russia and the Ukraine. CDC assisted the Russian Ministry of Health in planning a national symposium on diphtheria in Novgorod in May 1997. NIP scientists helped Ukraine officials to further analyze national diphtheria datasets as part of a review of the waning diphtheria epidemic, and to prepare to publish reports regarding this epidemic.

Congenital Rubella Syndrome

NIP epidemiologists assisted in planning and implementing Congenital Rubella Syndrome surveillance systems in Belize and Trinidad as a prelude to CRS surveillance throughout the entire Caribbean. NIP conducted retrospective studies to assess the extent of CRS in Mexico City and LaPaz, Bolivia. NIP also participated in Binational Commission (Mexico-USA_ meetings focused on implementation of CRS surveillance in Mexico and for enhanced rubella surveillance along the U.S. border.

National Institute for Occupational Safety and Health (NIOSH)

WHO estimates that at least 45% of the world' s population (58% of those over 10 years old) are in the workforce; about 75% of these are in developing countries and are at substantially greater risk for work-related injuries and occupational illnesses. Each year there are an estimated 120 million such injuries worldwide (approximately 200,000 of them fatal) and an estimated 68-157 million new cases of illnesses caused by workplace exposures. Occupational safety and health (OSH) programs are preventive activities aimed at identification, assessment, and control of hazardous factors in the workplace. Implementation of functional national OSH programs and expanded community-level delivery of simple but competent occupational health services could substantially improve the status of working populations that are currently without such protections and ultimately benefit overall public health and national socioeconomic status in developing countries.

The National Institute for Occupational Safety and Health (NIOSH) has adopted a global health strategy that is intended to both address these issues internationally and to generate knowledge applicable to occupational safety and health problems domestically. Overall objectives of this strategy are to 1) enhance local infrastructure and capacity to evaluate and control occupational safety and health problems; 2) improve access to relevant information for OSH programs and practitioners in developing countries; 3) develop transportable models for and assess the feasibility of wider implementation of capacity-enhancing programs; and 4) pool scarce resources to conduct relevant and mutually beneficial scientific research.

To implement this strategy, NIOSH is 1) establishing long-term, extensive bilateral collaborations with a small number of developing countries--initially Mexico, South Africa, and Vietnam; 2) continuing an arrangement with the Fogarty International Center of the National Institutes of Health to support international training--both in the U.S. and abroad--of scientists and technicians in disciplines related to OSH; and 3) enhancing collaborations with international organizations like WHO and PAHO. In addition, NIOSH continues its research collaborations with international groups (e.g., IARC) and counterpart national occupational institutes (e.g.,

Finnish and Swedish Institutes) and remains ready to respond to international requests for assistance.

Collaborations with Developing Countries

Efforts to develop the proposed bilateral collaborations in Mexico, South Africa, and Vietnam continued in FY97

In Mexico, at the end of FY97, a NIOSH medical epidemiologist/occupational physician replaced the original assignee and is now stationed at the PAHO Regional Representation Office. In addition to advancing the occupational/environmental health training program (e.g., in conjunction with the Field Epidemiology Training Program in Mexico), this effort has coordinated a variety of surveillance and workplace investigative activities. Additional activities have included training of occupational physicians in the US-Mexico Border Region and training in a software system for workplace occupational health/safety surveillance. Topics of particular emphasis have included pesticide poisonings and occupational lead exposures.

In South Africa, the NIOSH collaboration with the National Centre for Occupational Health (NCOH), was initiated with a 2-month visit by a NIOSH team, consisting of occupational physicians and an industrial hygienist, which explored areas of potential cooperation. In addition, NIOSH supported an assessment of the current state of occupational medicine in South Africa and collaborated on exploring the feasibility of several research projects. Planning was initiated for stationing a NIOSH industrial hygienist at NCOH for 6-12 months to work on enhancing industrial hygiene capacity in South Africa and for development and presentation of a workshop on the assessment of pesticide exposures, which will be presented in South Africa in FY98. Finally, NIOSH is coordinating activities with the Fogarty Center grantee that is supporting training of South African scientists and professionals in areas related to occupational safety and health.

In Vietnam, NIOSH initiated explorations of collaborations with the Vietnamese National Institute for Occupational and Environmental Health during an exploratory visit by a team of NIOSH staff during early 1997. Initial approaches to be considered include training exchanges and facilitating information exchange.

Lessons Learned:

ÿ *Efforts in this area are at preliminary stages, and most of the lessons are yet to be learned. It is anticipated that these projects will generate transferable models for creating OSH expertise in developing countries. NIOSH should also gain from this experience increased ability to address OSH problems unique to special sectors in the U.S. economy (e.g., small business, self-employed and informal sectors, agriculture, child labor), which are currently served (and protected) inadequately. Finally, lessons learned from establishing effective surveillance systems in developing countries are likely to prove useful in expanding and improving the U.S. OSH surveillance system.*

Collaborations with International Organizations

The NIOSH cooperative agreement with the World Health Organization (WHO) remains in force. Current activities directly under the scope of this agreement include development of a guide to recognition of occupational diseases for use in developing nations, development of a training package aimed at the prevention and control of dust exposure in the workplace, and training teachers in effective curriculum development and teaching methodologies for occupational and environmental health education in South Africa.

Beyond the specific scope of this agreement, NIOSH staff have participated prominently since 1986 in a major multinational effort with the WHO International Programme for Chemical Safety (IPCS), to develop concise chemical assessment documents for the international community, the International Chemical Safety Cards (ICSC). NIOSH staff have helped develop 869 ICSCs on chemicals in a multitude of workplaces and translate them into more than 25 languages. During FY97, NIOSH staff developed 21 new cards and reviewed 27 cards developed by the 14 participating agencies from 10 countries. NIOSH advised the Secretariat, WHO, IPCS, concerning the future direction of this project during meetings in Switzerland, Italy, and Finland. This international collaboration involves highly technical hazard communication data (material safety data sheets) that are translated into standardized, accurate, and easily understandable information for workers and managers in small and large businesses. Most importantly, in FY 1997, a NIOSH computer programmer wrote programs to automatically generate HTML-tagged versions of the ICSCs to mount the English-language version of the cards on the NIOSH Home Page (http://www.cdc.gov.niosh). NIOSH/EID also plans to add Finnish, French, Spanish, Swahili, Malaysian, Portuguese, and German language cards to the Home Page. Additionally, several versions of the programs were created to generate cards in other formats.

Country-Specific International Projects

At the request of the Instituto Mexicano Del Seguro Social and PAHO, NIOSH sent a representative to participate in the study of the forest factories located in and around the state of Durango. A primary purpose of the trip was to conduct site visits at a number of logging camps and logging factories and provide suggestions for improving worker safety and health. The NIOSH researcher observed a wide range of facilities, ranging from simple processes like logging camps to more complex processes such as automated paper mills. Safety hazards were noted at most of the facilities visited, and the NIOSH researcher was able to recommend prevention measures to help abate many of the identified hazards. This effort was noteworthy in that NIOSH was able to provide specific recommendations that, if implemented, would have a direct impact on improving the safety and health of the workers at each of these facilities.

A NIOSH scientist served on a CDC TB Consultation Team that consulted with health authorities in Brazil, Ivory Coast, and Latvia in 1997. The focus of the work was reducing the nosocomial transmission of TB in hospitals. Ventilation, location of patient facilities, use of personal protective equipment, and proper use of laboratory equipment were among the topics addressed. General guidelines for control of TB for developing countries (a joint effort of NIOSH, NCID, and NCHSTP) are being developed based on site visits conducted during the last two years. NIOSH will draft manuscripts describing specific engineering control recommendations, as well as the construction and performance specifications for an effective, yet inexpensive, Class I biological safety cabinet (BSC).

At the request of the Chilean National Copper Corporation, a multi-Divisional, multi-specialty NIOSH team conducted an assessment of the occupational health and safety programs at one of their copper mines, including evaluation of occupational health and safety practices at the mine's associated concentration plants and smelter. The team identified five major areas in which the facility could make major health and safety improvements, including changes in the corporate structure to create a safety and health position in the upper management of the company; incorporating new outcome measures for evaluating overall corporate health and safety; improving communications to better reinforce the importance of health and safety in the general workforce and to gain union involvement in this area; making additional control technology improvements with the assistance of outside consultants; and improving corporate health screening and monitoring programs. The recommendations provided by the NIOSH team could serve as the first step in the development of improved health and safety throughout the Chilean mining industry.

During FY97, NIOSH implemented the recent agreement between NIOSH and the Korea Industrial Safety Corporation (KISCO) by hosting the first in a series of KISCO scientists who will train for 6-12 months at NIOSH laboratories. This researcher worked for 6 months in the area of passive samplers for assessing worksite environmental exposures. Several more such visits are scheduled for FY98.

Public Health Practice Program Office (PHPPO)

The Public Health Practice Program Office (PHPPO) has the responsibility for assessing the quality of performance of laboratories that test for diseases of public health significance. These assessment activities include collecting information about the public health workers, the public health systems with which these workers are associated, and the laboratory systems in which the testing laboratories are associated. Internationally, PHPPO's activities focus primarily on assessing testing laboratory performance and improving or maintaining the quality of laboratory practice in support of public health objectives, as well as developing training materials to meet the needs of high priority international health programs.

Another program at PHPPO working internationally is the Sustainable Management Development Program (SMDP), established by CDC in 1992. This program is designed to strengthen in-country management training capacity in the health sector of developing countries. The goal is to assist developing countries in improving the health and productivity of their people by empowering local health officials with better management and decision-making skills, unleashing creativity and innovation in problem-solving among local health personnel, integrating categorical health services to improve efficiency and mobilizing community support for public health interventions.

An integral part of SMDP is the Management of International Public Health (MIPH) Course. In this course, management trainers from more than 34 countries have improved their management and training skills by attending the annual MIPH course held each fall in Atlanta, Georgia. The course, developed in collaboration with Emory University, equips participants with the knowledge and skills needed to bring about constructive and meaningful change in their countries and organizations.

Sustainable Management Development Program (SMDP)

The Sustainable Management Development Program (SMDP) conducted its sixth annual Management for International Public Health (MIPH) course for 21 participants from 11 countries. Offered in collaboration with Emory University's Rollins School of Public Health, the course used a training of trainers approach to strengthen public health management training capacity in other countries. FY 1997 sponsors of the MIPH program included USAID, UNICEF, UNDP, PAHO, Academy for Educational Development, Caribbean Epidemiology Centre, HHS Office of International and Refugee Health, Rockefeller Foundation, Shell Oil Foundation, the Government of the Philippines and the Government of the Republic of Palau. In-country technical assistance was provided by SMDP staff to South Africa, Taiwan, Nigeria and Bolivia to support in-country management training activities by MIPH alumni/ae. Particularly noteworthy was SMDP collaboration with the Carter Center's Global 2000 River Blindness Program in the successful establishment of the Jos Sustainable Management Training Centre in Plateau State, Nigeria.

Division of Laboratory Systems (DLS)

International activities of the Division of Laboratory Systems (DLS) were focused on assessing the performance of laboratories which test for diseases of public health significance. During FY 1997 151 laboratories in 81 foreign countries were provided with HIV-1 plasma sample panels to directly assess their testing performance. A similar assessment was done for 17 foreign countries in 33 laboratories which performed HTLV-I/II antibody testing. In collaboration with PAHO's Regional Advisor in HIV/AIDS, the DLS Model Performance Evaluation Program (MPEP) has enrolled 44 National Reference Laboratories representing 26 countries in Latin America. Laboratory results from Latin America reported to the CDC are aggregated and used by PAHO to compare the performance of laboratories in Latin America with the performance of all MPEP participant laboratories. DLS staff have contributed to the laboratory portion of the ISO 9000 standards setting activity, including staff participation in international discussions and drafting of laboratory standards that can be used globally.

Division of Media and Training Services (DMTS)

The Division of Media and Training Services (DMTS) enrolled 77 persons from 16 foreign countries in CDC distance learning self-study programs during FY 1997. The highest percentage of trainees (60%) were enrolled in the *Principles of Epidemiology* course. The satellite broadcast system of the DMTS Public Health Training Network (PHTN), designed primarily for U.S. health professionals, also had a total of 67 participants who participated in five satellite broadcasts to locations in Canada.

Africa

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BENIN

Child Survival

NCID/Child Survival Activity (CSA), as part of a team that includes members from Africare and Basic Support for Institutionalizing Child Survival (BASICS) Project, provided assistance in planning operational research projects in Ouémé Department for the USAID-funded Africa Integrated Malaria Initiative (AIMI). The projects included baseline studies for planning and evaluating implementation of the WHO/UNICEF Integrated Management of Childhood Illness (IMCI) guidelines.

BOTSWANA

Chlamydia

NCID/DBMD tested specimens for Chlamydia and Mycoplasma in collaboration with DASTLR.

Tuberculosis

During 1997, DTBE was involved in several activities in Botswana. DTBE received approval to conduct a study to assess the prevalence of malabsorption of TB medications in HIV- infected patients. These findings will be useful internationally in determining the adequacy of current regimens for HIV-infected patients. Another study is assessing levels of infection and disease in the pediatric contacts of adult smear-positive and smear-negative TB patients to help highlight the usefulness of contact tracing of infectious and presumably non-infectious patients in developing country settings and determine whether DOPT can be administered effectively in the context of patient treatment. An additional study is evaluating the rate of culture positivity and the role of other pulmonary pathogens in HIV infected persons to be used in the development of algorithms designed to improve the diagnosis of TB in low income countries with high HIV prevalence. Other studies are examining community transmission and community care of TB, the importance of TB as a cause of unrecognized pulmonary pathology among deceased HIV-infected patients, and TB drug quality screening for developing countries.

NCID/DASTLR, in collaboration with NCHSTP/DTBE, initiated studies to evaluate a polymerase chain reaction (PCR) -based method for rapid detection of *M. tuberculosis* in acid-fast bacilli (AFB) smear negative clinical specimens from the National Public Health Laboratory of Botswana.

NCID/DASTLR, in collaboration with NCHSTP/DTBE, performed RFLP typing of *M. tuberculosis* isolates, confirmed antimicrobial resistance in *M. tuberculosis* isolates, identified nontuberculous mycobacteria, and provided consultation in support of the BOTUSA study "Assessing transmission of tuberculosis in Botswana using conventional and molecular epidemiologic studies."

BURKINA FASO

Dracunculiasis

NCID/DPD staff consulted with the National Eradication Program in Ouagadougou to assist with the implementation of case containment strategy.

Meningitis

NCID/DBMD collaborated with Burkina Faso Ministry of Health, EPI of World Health Organization (WHO) Headquarters and the African Regional Office of WHO to investigate a large epidemic of serogroup A meningococcal disease. Control strategies were evaluated and the performance the vaccine verified through a case-control vaccine efficacy study.

CAMEROON

Dracunculiasis

An NCID/DPD consultant worked with officials of the eradication program to accelerate ending transmission of dracunculiasis in the last remaining foci in the Mandara Mountains near the Nigerian border.

CAPE VERDE ISLANDS

Cholera

NCID/DBMD completed field investigation of epidemic cholera in Cape Verde Islands, showing that poorly maintained water systems were responsible for sustained transmission over a 1 year period. Home water treatment and safe storage had not been adequately promoted to offset failures of municipal water treatment systems. Results were presented at ICAAC and a manuscript is in preparation.

CENTRAL AFRICAN REPUBLIC

Child Survival

The NCID/CSA resident advisor in the Central African Republic for the AID-funded Sustainable Child Survival Project was forced to leave in early FY97 because of armed conflict in Bangui. It was not possible to continue most project activities. However, a CSA staff epidemiologist was able to work at CDC/Atlanta with a colleague from the Central African Republic on the analysis of a tetanus antitoxin seroprevalence survey to determine the correspondence between tetanus toxoid coverage, as measured in UNICEF' s Multiple-Indicator Survey, and serologic protection.

Genital Ulcer Disease

NCID/DASTLR provided assistance to the Central Africa Republic Ministry of Health in determining the prevalence of genital ulcer disease (GUD) using multiplex PCR procedure to detect chancroid, syphilis, and HSV.

Hantavirus

NCID/DVRD provided filovirus and hantavirus reagents and lab backup.

HIV/STD Prevention

NCHSTP oversaw the orientation and in-country start-up of a new CDC STD resident advisor. CDC staff prepared an outline for a national STD strategy and 12-month work plan for bringing AID-funded activities to scale prior to Project Anticipated Completion Date. NCHSTP also prepared two manuscripts using the patient database(n=5280) from two enhanced STD service sites. They presented partner notification results at ISSTDR. In collaboration with NCID/DPD, staff also prepared a close-out of the PASA on 9/30/97 with submission to USAID of STD-related trip reports and technical documents and final report.

CHAD

Dracunculiasis

An NCID/DPD consultant assisted the Dracunculiasis Eradication of Chad to intensify field operations to eliminate the few remaining foci of the disease from the country.

Poxviruses

NCID/DVRD performed laboratory diagnostic tests on samples from 6 suspect monkeypox cases in southeastern Chad in the eastern Logone region near the city of Doba. Unusual results were obtained in that serology suggested 4 of the suspect cases, with no evidence of prior smallpox vaccination, had somehow been infected with an orthopoxvirus, although 4 cases were clearly active cases of varicella.

CONGO

Human Monkeypox Virus

NCID/DVRD staff, WHO, Médecins Sans Frontiérs, and Congo Health Ministry have been collaborating on surveillance of Human Monkeypox Virus in the region.

CÔTE D'IVOIRE

Arboviruses

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Dengue

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Dracunculiasis

A NCID/DPD consultant worked with the national Guinea worm eradication program to improve village level program with respect to interventions, planning, and evaluation.

HIV/AIDS

NCID/DASTLR staff has collaborated with NCHSTP/DHAP-SE, Projet RETRO-CI, and the Ivorian Ministry of Health to define patterns of HIV perinatal transmission and develop intervention strategies. NCID activities to date have centered on subtyping viruses and determining viral loads in women who transmit HIV versus those who do not.

NCID/DASTLR, in collaboration with Projet RETRO-CI and the Ivorian Ministry of Health, is conducting a population-based characterization of the urban and rural HIV epidemics in Côte d' Ivoire. The study involves surveillance for divergent HIV strains and development of an epidemiologic profile of the epidemic which incorporates genetic subtype data.

NCHSTP performed a review of research conducted at Projet RETRO-CI to ensure that 2 major clinical trials were underway in Abidjan. Staff also provided technical assistance in data management for ongoing clinical trials at Projet RETRO-CI.

Projet RETRO-CI' s epidemiology research is now shifting towards interventional, rather than descriptive, research. Large cohort studies to access how to prevent HIV-infection in uninfected persons and how to prevent HIV-disease in HIV-infected persons are underway.

Human Papillomavirus

NCID/DVRD collaborated with the government of Cote d' Ivoire (Project RETRO-CI) to study rates of human papillomavirus (HPV) infection and HPV-associated cervical disease among human immunodeficiency virus (HIV) type 1, type 2, and seronegative women. This is one of the first collaborations designed to study the association between HIV and HPV in low risk women (women who are not prostitutes) and the first to study the association of HIV-2 with HPV infection and associated disease in both high and low risk women. In addition, routine Pap

smear screening programs do not exist in Cote d'Ivoire, therefore, the use of the Pap smear in this study will allow an estimate of the extent of cervical disease in Abidjan, Cote d'Ivoire to be obtained.

Tuberculosis

NCID/DASTLR, in collaboration with NCHSTP/DHAP-SE, evaluated the mycobacteriology laboratory, provided on-site consultation, and provided a training program for laboratory workers.

Yellow fever

NCID/DVBID staff collaborated with CDC HIV program and Ministry of Health to study immunogenicity of yellow fever vaccine in HIV-infected infants.

NCID/DVBID staff provided diagnostic assistance and/or reference services.

DEMOCRATIC REPUBLIC OF THE CONGO

Ebola Virus

NCID/DVRD, as a continuation of the epidemiologic investigation of the largest known epidemic of Ebola hemorrhagic fever in Zaire in 1995, developed and piloted a long term surveillance system based on immunohistochemical testing of skin snip samples to target seroprevalence among various populations. Specimens collected during a large ecological investigation of the potential reservoir of the virus undertaken in 1995 were analyzed. A training manual was developed for healthcare workers dealing with VHF. CDC trained lab workers on manual use and field tested results of behavior modifications learned through manual. NCID/DVRD provided immunohistochemical diagnostic testing and pathology consultation on cases of Ebola and/or unknown hemorrhagic fever.

Emergency Response

NCEH/IERHP and NIP staff traveled to the rebel-held areas of Zaire as UNICEF consultants with the support of OFDA. They assessed the condition of the health system after the civil war fought in October through December 1996 in the North Kivu region. In addition, they assessed then current activities of Zairois and international organizations in providing health and public health services. Final recommendations were made to UNICEF to guide their activities in reconstruction for the following year.

Health Assessment

NCEH/IERHP staff assisted USAID/BHR/OFDA to determine the condition, composition, needs, and location of refugees and affected populations in Eastern Zaire, including Rwandan refugees who fled fighting in their respective refugee camps in Bukavu and Goma, Zaire, and

also internally displaced (IDPs) Zairians who have fled their homes to avoid armed clashes. This mission provided U.S. Government and senior-level Government of Zaire officials with a true picture of needs, and made recommendations for responsive humanitarian assistance interventions.

CDC staff assisted WHO in an assessment of health and health services in the Democratic Republic of the Congo in August and September 1997.

Human Monkeypox Virus

NCID/DVRD initiated collaborative studies with WHO to investigate the apparent recent rise in human monkeypox cases in the Democratic Republic of Congo (formerly Zaire).

Smallpox and Other Poxviruses

NCID/DVRD, the WHO Collaborating Center for Smallpox & Other Poxvirus Infections, performed serologic and virologic studies on samples from the area to supplement surveillance activities.

ETHIOPIA

STDs

NCID/DASTLR staff, in cooperation with Ethiopian Ministry of Health, Macro International, and USAID/Ethiopia conducted an STD pilot study in Southern Ethiopia as one component of the Ethiopian Reproductive Health Survey. The objectives were a) to train health assistants in specimen collection techniques, specimen handling, and transport procedure; b) to test the feasibility of the collection and transport procedures in the field using anonymous, random sampling from both urban and rural areas at the household level; and c) to determine the acceptability of collecting self-administered vaginal swabs and collection of capillary blood from a finger-stick for on-site syphilis testing.

Rabies

NCID/DVRD continued collaboration with the Ethiopian Ministry of Health and the Ethiopian Health Nutrition and Research Institute to prepare for a rabies post-exposure vaccine study and sustainable rabies control program.

GABON

Ebola Virus

NCID/DVRD provided training in the molecular biology of Ebola. Staff also provided reagents and technical support for Ebola diagnosis, a skin biopsy kit and a barrier nursing training manual. NCID/DVRD also provided immunohistochemical diagnostic testing and pathology consultation on cases of Ebola and/or unknown hemorrhagic fever.

GAMBIA

Meningitis

NCID/DBMD collaborated with researchers of the Medical Research Council (MRC) on a study of the response to polysaccharide versus conjugate vaccine in children who received an investigational serogroup A/C meningococcal conjugate vaccine (produced by Chiron) during infancy. These studies are critical in developing a basis for introduction of routine meningococcal vaccination in Africa for effective control of epidemic meningococcal disease. NCID/DBMD assisted in laboratory analysis for study of meningococcal vaccine trials.

GHANA

Dracunculiasis

NCID/DPD staff planned and conducted an external evaluation of the Ghanian Guinea worm Eradication Program in four of the most endemic districts of the country. Subsequently, a NCID/DPD consultant carried out two separate visits to assist Ghana to improve detection of and containment of cases with emphasis on the Northern Region of Ghana.

Meningitis

NCID/DBMD collaborated with the Ghanian Ministry of Health in development of a control strategy for a large epidemic of meningococcal disease in Ghana. This was an important step in development of a longer term relationship in collaboration on improving detection and control of meningococcal disease. NCID will conduct a bacterial meningitis laboratory training course for regional English-speaking countries in Ghana during FY98.

GUINEA

Lassa Fever Virus

NCID/DVRD drafted a memorandum of collaboration which is now being negotiated for research which will allow the CDC and the Government of Guinea to collaborate in the study of Lassa fever and other infectious diseases through the Ministry of Health and the Ministry of Education and Scientific Research, and will allow SPB to establish a Lassa fever research field station in Guinea.

NCID/DVRD provided training and support in conducting rodent studies and disease surveillance through an exchange program from the Lassa Fever Research Program in Sierra Leone.

NCID/DVRD performed immuno histochemical diagnostic testing and provided consultation on isolated cases of Lassa Fever.

KENYA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services and training in PCR and ELISA for viral diagnostics.

Child Survival

NCID/CSA, with partial funding from AID' s Africa Integrated Malaria Initiative, provided technical assistance to the Ministry of Health in improving the management of childhood illnesses in rural health facilities using the IMCI guidelines. Assistance focused on conducting a follow-up health facility survey in the Western Province to determine how well health workers followed the IMCI guidelines several months after training in IMCI and on monitoring and improving health worker performance through visits to health facilities by district supervisors.

CSA staff met with CARE staff in Kenya to write a project design for CDC/CARE collaboration to strengthen CARE' s Community Initiatives for Child Survival in Siaya Project, in the Siaya District of western Kenya. This collaboration, which is part of the CARE/CDC Health Initiative, will focus on operation research projects and evaluation activities to monitor project outcomes and strengthen project interventions.

Dengue

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Dysentery

NCID/DBMD epidemiologists were sent to Kenya to begin assessing the burden of dysentery in the population under surveillance at the CDC Kenya field station at Kisumu. Laboratory training and survey methods were provided to the field station. The presence of multiply-resistant *Shigella dysenteriae* type 1 was confirmed, and empiric treatment protocols were accordingly reviewed to ensure appropriate therapy.

Echinococcosis

NCID/DPD is providing advice and collaborative activities to the NIH-funded parasitic disease project in the Turkana. Current works include development of improved antigens for screening and diagnosis and evaluation of oxfendazole for treatment of disease.

Epidemic Investigation

NCID/DVRD provided laboratory assistance for an investigation of an outbreak of unknown origin in Masai herdsmen. Skin biopsy kits and training manuals on barrier nursing were also provided.

Health Assessment

NCEH/IERHP staff assisted the American Red Cross (Amcross) in conducting a Primary Health Care Program Design Mission to design a deliberate plan of action for future health and development activities in the Africa region. This mission developed viable methods and strategies for implementing primary health care interventions in Africa through collaboration and with National Red Cross and Red Crescent Societies and local health authorities.

Hemorrhagic Fever Viruses

NCID/DVRD provided pathology consultation and diagnostic testing on suspected hemorrhagic fever cases.

HIV

NCID/DASTLR staff is collaborating with NCID/DPD staff to define patterns of HIV perinatal transmission and develop intervention strategies. Studies to date have centered on subtyping viruses and the determination of viral loads in women with perinatal malarial infections who transmit HIV versus those who do not.

In collaboration with Kenya Medical Research Institute, NCID/DASTLR staff is conducting a population-based characterization of the urban and rural HIV epidemics in five communities within Kenya. The study involves surveillance for divergent HIV strains and development of an epidemiologic profile of the epidemic which incorporates genetic subtype data.

Lymphatic Filariasis

NCID/DPD initiated with the Kenya Medical Research Institute KEMRI staff a community based study on host immune responses and responses following selective chemotherapy.

Malaria

NCID/DPD carries out a multifaceted program of malaria research at its field station in Kenya, part of the Kenya Medical Research Institute (KEMRI) and conducted a survey of malaria prophylaxis use among European and American travelers to Kenya. In collaboration with the Kenya Medical Research Institute, continued research into clinical, epidemiologic, and immunobiologic studies of malaria infection in western Kenya.

These activities are part of an ongoing, multidisciplinary longitudinal and prospective project that is studying a cohort of women and children naturally exposed to malaria in an area of

intense malaria transmission. The immunologic and molecular biologic investigations include 1) studies aimed at delineating characteristics of natural immunity that confer immunity against clinical illness; 2) studies aimed at assessing genetic diversity in the natural population of infectious agents; and 3) studies aimed at developing and field testing new diagnostic tools.

NCID/DPD staff participated extensively in the development of the Bungoma District Initiative (BDI) -- a 5-year integrated malaria control project in Western Province (and one site of the USAID-sponsored Africa Integrated Malaria Initiative). NCID/DPD staff conducted pre-design assessment activities along with local officials and staff from other collaborating agencies. NCID/DPD staff presented the findings of these activities to the District Health Management Team and participated in the BDI planning workshop and as members of the BDI design team.

NCID/DPD assisted KEMRI and DPD field staff in implementing the first phase of a large-scale insecticide-impregnated bed net trial to assess whether children under 5 years of age who sleep under these nets have a lower crude- and malaria specific-malaria compared with children who do not sleep under such nets.

NCID/DPD provided continued training in malaria vector insecticide resistance detection and assessment for a scientist from the Kenya Medical Research Institute (KEMRI). A DPD scientist also served as an external examiner for this KEMRI scientist on his Ph.D. dissertation at the University of Nairobi.

NCID/DPD, in collaboration with DoD entomologists, have scheduled the field evaluation of a rapid (5 minute) wick assay for identification of malaria vectors.

NCID/DPD analyzed bed net samples for deltamethrin content for a KEMRI investigator.

NCID/DPD participated in a John D. and Catherine T. MacArthur Foundation Biology of Disease Vectors Course by providing lectures on malaria and molecular methods, laboratory training in methods for *Anopheles gambiae* polytene chromosome in situ hybridization, and microsatellite mapping of the same vector.

Management Training

PHPPO staff attended a joint planning session for the CDC/CARE Collaborative Health Initiative. PHPPO' s management training program (SMDP) may be incorporated into CARE training needs at the country level.

Pneumonia

NCID/DBMD staff, at the request of USAID and CARE, consulted on a community-based pneumonia control program in the Siaya District. Recommended strategies to enhance supervision and organization of community-wide control program.

Yellow Fever

NCID/DVBID staff provided assistance in follow up investigations of yellow fever transmission in Kenya, helped develop an improved surveillance system in that country, provided consultation on surveillance, epidemiology and laboratory diagnosis of yellow fever, and provided laboratory reagents.

MADAGASCAR

Cysticercosis

NCID/DPD, in collaboration with the Pasteur Institute and local health authorities, has conducted a small pilot survey for cysticercosis. The results indicated a significant problem exists. DPD is seeking support and is considering a more thorough survey of the island's population.

MALAWI

Antimicrobial Resistance

NCID/DBMD evaluated antibiotic-resistant bacteria among children treated for malaria.

Malaria

NCID/DPD staff, in collaboration with NCID/DBMD, conducted a study of the potential for bacterial pathogens to develop resistance to trimethoprim/ sulfamethoxazole in children treated for malaria with pyrimethamine/ sulfadoxine.

Rotavirus

NCID/DVRD is collaborating with scientists in Malawi to study rotavirus infection in HIV infected children.

MALI

Malaria

NCID/DPD began a collaborative study on prevention of malaria during pregnancy with the Malaria research and Training Center (Bamako).

NCID/DPD provided a consultation to NIH (Malaria Research Laboratory) and the Malaria Research and Training Center (Bamako) on improvement of the National Malaria Control Program of Mali. Also, in collaboration with the National Medical School of Medicine and Pharmacy of Mali, DPD initiated a research project on prevention of malaria in pregnancy.

STDs

NCHSTP provided technical assistance to develop a detailed training plan and budget for "Training of Trainers" in the use of STD syndromic algorithms. The actual training materials for the course were also developed.
National STD treatment policy/guidelines were developed for health center and referral center levels. The policy/guidelines were a product of U.S., Canadian, and Malian collaboration.

MAURITANIA

Dracunculiasis

NCID/DPD provided consultations to Global 2000 and the Ministry of Health of Mauritania on planning and implementing dracunculiasis eradication activities. Staff informally assessed the effectiveness of case detection and control interventions in selected areas of the country and recommended activities to correct the observed deficiencies. Staff also worked with the Ministry of Health and its partners to prepare for a planned review of their program.

MOROCCO

Public Health Training

NCID/DBMD collaborated with the Eastern Mediterranean Regional Office of WHO, WHO Headquarters, and the Moroccan Ministry of Health in a train the trainers course using material developed by CDC for representatives of 13 eastern Mediterranean countries. These trainers will initiate a cascade of training in their respective countries, reaching all district level health officers over the next 2-3 years.

MOZAMBIQUE

Malaria

NCID/DPD staff participated in the First Southern African Malaria Conference held in Maputo, Mozambique and held discussions with the Ministry of Health and representatives from USAID regarding supporting malaria control activities in Mozambique.

NIGER

Meningitis

NCID/DBMD collaborated with Center of Research on Meningitis and Schistosomiasis (CERMES), the World Health Organization's Global Program on Vaccines/Vaccine Research and Development, and the Niger Ministry of Health on meningococcal conjugate vaccine trial. Staff presented data on the evaluation of the immunogenicity and safety of an investigational conjugate vaccine against serogroups A and C meningococcus (produced by Pasteur Merieux Serums and Vaccines/Connaught Laboratories Inc.) in increasing dosages among infants in

Niamey, Niger at the International Conference on Antimicrobial Agents and Chemotherapy. Results provided important information on the response to this vaccine in African infants, for whom risk of disease is high.

NIGERIA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Child Survival

NCID/CSA is one of five Implementing Partners responsible for the AID-funded Nigeria Combating Childhood Communicable Diseases (NCCCD) Project. Implementation of the CDC/NCCCD project activities began after the project was redesigned so that activities take place exclusively in the private sector, mainly at 9 non-governmental organizations (NGOs) that together are responsible for approximately 90 health facilities serving 1700 communities. NGO staff were trained in "sustainability" skills (for example, in setting up and maintaining a drug revolving fund), and village health workers from the NGO catchment areas were trained in basic primary health care skills and counseling. After the Ministry of Health adopted IMCI guidelines for national use, CDC/NCCCD project work plans were completed in which NCID/CSA will assist in the implementation and evaluation of IMCI training within the NGOs.

Hemorrhagic Fever Viruses

NCID/DVRD hosted a visiting scientist from the University of Ibadan who spent one year at CDC testing Nigerian specimens for Lassa and other hemorrhagic fevers**.**

NCID/DVRD performed immuno histochemical diagnostic testing and provided consultation on isolated cases of Lassa fever.

Laboratory Support

NCID/DBMD collaborated with WHO/HQ, WHO/AFRO and the Ministry of Health in conducting a site visit and direct assessment of laboratories for the selection of national reference laboratories in Nigeria. Staff organized and carried out intensive three-day workshop for standardization of laboratory methods for *N. meningitidis* and trained 10 laboratorians from six laboratories in five Nigerian States. The also provided kits containing media, reagents and supplies to all six laboratories for performance of spinal tap, isolation and identification of *N. meningitidis*.

Malaria

NCID/DPD completed a 2-year insecticide-impregnated bed net study to evaluate the effect of this vector control measure on malaria transmission.

Management Training

A PHPPO staff member traveled to Nigeria to serve as a facilitator in the management training course for onchocerciasis control managers there. PHPPO is providing ongoing technical assistance for training of onchocerciasis control managers in Nigeria. The PHPPO staff member also served as a consultant to the Global River Blindness Program of the Carter Center and their Management Training Center in Jos, Nigeria. The nature of the visit was to advise on the curriculum being taught and to facilitate several sessions of the management training program.

RWANDA

Emergency Response

NCEH, NCHSTP, and OGH staff traveled at the request of OFDA, WHO, UNHCR, and IRC to Rwanda to assist with the tremendous influx of returning Rwandans in October, November, and December 1997. Activities included developing an emergency health surveillance system, coordinating humanitarian relief efforts, acting as UNHCR medical coordinators, helping non governmental organizations establish emergency health activities, and assessing the long term health issues associated with the then current massive refugee movement from Eastern Zaire to Rwanda.

Health Assessment

NCIPC staff were sent in early October 1997 at the request of OFDA to Rwanda to conduct a public health assessment and to evaluate United States Government funded non-governmental organizations' relief and rehabilitation efforts.

SENEGAL

Dracunculiasis

An NCID/DPD consultant advised staff of the National Dracunculiasis Eradication Program in techniques to speed elimination of the disease from the country.

SIERRA LEONE

Lassa Fever

NCID/DVRD provided epidemiologic assistance during a major outbreak of Lassa Fever. Continued civil unrest has led to an operations shift from Sierra Leone to Guinea where studies

were begun to look at human and rodent antibody prevalence. NCID continued support and lab testing. Skin biopsy test kits were supplied in addition to barrier nursing manuals.

NCID/DVRD, in collaboration with WHO and Merlin, conducted on-site pathology studies of Lassa fever in Kenema.

SOUTH AFRICA

Antimicrobial Resistance

NCID/DBMD collaborated with South African researchers on the evaluation of antibiotic-resistant bacteria in children treated for malaria in Malawi.

Cancer

This project is a collaborative effort between NIOSH researchers in the Health Effects Laboratory Division (HELD) and the Education and Information Division (EID), the National Cancer Institute, and the National Centre for Occupational Health in Johannesburg, South Africa. This study will examine the interrelationships between various genetic markers and occupational exposures to silica, radon, asbestos, and other occupational exposures among miners in South Africa. Genetic markers that will be examined include both markers of somatic mutations that may be related to oncogene or tumor suppressor gene activation, and markers of genetic polymorphisms that may modify the risk from these occupational exposures. This study has the potential for being by far the largest study of the interrelationships between genetic characteristic and occupational exposures that has ever been conducted.

Dengue

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Diarrheal Diseases

NCID/DVRD scientists are assisting in the development of a rotavirus surveillance program.

Genital Ulcer Disease

NCID/DASTLR is collaborating with the National Reference Center for STDs (Johannesburg) on a study of the etiology of genital ulcer disease in Johannesburg, Durban, Capetown and Carletonville.

Hemorrhagic Fever Viruses

NCID/DVRD provided diagnostic reagents for detection of filovirus infection; collaborated with the National Institute for Virology on ecological study of the area around Kikwit, Zaire, the site

of the Ebola outbreak in 1995. Also provide molecular biological diagnostic support for continued investigation in Gabon by South Africa.

HIV/STD Prevention

NCHSTP is actively involved in a USAID PASA related to HIV/STD prevention in South Africa. A NCHSTP staff member serves as a team member for the South Africa National Review of HIV/STD prevention programs and program design. CDC staff are also collaborating with South African colleagues on a proposed cross-sectional and prospective HIV-incidence study, looking especially at HIV-infection associated with PROGESTIN use. Staff conducted a review of HIV/AIDS diagnostics and laboratory facilities in South Africa.

Lyssavirus

NCID/DVRD collaborated with the Onderstpoort Veterinary Institute to conduct Lyssavirus surveillance and characterization.

Management Training

PHPPO staff conducted a 6 week management training course of 35 training personnel representing the 9 provinces of South Africa. Proposals to implement similar training have been received from 6 of those provinces and staff are attempting to ascertain the provincial leadership commitment to sustained management training in terms of personnel and funding. The design of each curriculum and associated logistics were additional technical assistance undertaken by the CDC consultant during FY 97. A PHPPO staff member also served as a consultant to the USAID Bridging Evaluation Team regarding all aspects of the 2 year Primary Health Care Management Training Project. The consultant provided information on activities and personnel, conducted interviews, reviewed evaluation data and made recommendations towards the production of an evaluation report.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Occupational Health

South African mine workers (gold, uranium, asbestos, vanadium, platinum, coal, etc.), are described as Whites (Africanas), Blacks (Africans) and Coloureds. A worker compensation program has been in place for approximately 25 years. This program requires that a worker be autopsied, if found to have an occupationally related disease the
worker' s family is eligible for financial compensation. Despite reluctance to undergo autopsy procedures the compensation is substantia. Full autopsies are conducted in Johannesburg, but typically heart and lungs only are sent to Johannesburg for evaluation. Major diseases in these populations are: lung cancer, silicosis, pneumoconiosis, HIV-1 (up to 25%) and tuberculosis (also 25%). A NIOSH/HELD/TMBB study will consist of

a recovery of the materials and PCR assays from the cases, a retrieval of the epidemiologic profiles on the same individuals, obtaining fresh frozen samples on as many as possible non-HIV/non-TB individuals, determining gene frequencies in specific populations (e.g., Africanas), and refining a protocol that describes evaluation of various inherited, potential disease susceptibility genes (CYPs and GSTs) and genes mutated in carcinogenesis (p53, ras, NF2).

NIOSH/OECSP is collaborating with its South African counterpart agency, the National Centre for Occupational Health (NCOH), in joint research and capacity development. Initial plans call for 1) detailing a NIOSH industrial hygienist to NCOH for 6-12 months to work toward building industrial hygiene programs and capacity at the national and provincial level, as well as hosting four to six NCOH staff at NIOSH for short periods (up to 6 months) to learn research techniques; and 2) developing and delivering in at least two sites of a workshop addressing pesticide exposure assessment and control. Related activities included collaboration with a South African researcher to assess the feasibility of measuring male reproductive effects among manganese-exposed workers and funding a US occupational medicine expert to evaluate occupational health and the state of occupational medicine training in South Africa and to provide a series of recommendations to improve this capacity.

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

School Health

NCCDPHP/DASH, in cooperation with USAID, is taking the lead in developing a program of health cooperation. DASH and WHO worked with South African colleagues to convene the first meeting of a Sub-Regional Task Force for the Development of Health Promoting Schools in Cape Town. Key South African health promotion officials and DASH have explored possibilities for collaboration in building national capacities for school health promotion in South Africa.

Shigella

NCID/DBMD recruited a fellow from Natal Medical School, South Africa, to assist in development of a rapid diagnostic assay for *Shigella dysenteriae* type 1.

STDs

NCHSTP staff initiated discussions with the South African Ministry Of Health, USAID and others regarding the possible initiation of a STD Research Station in South Africa.
Staff also submitted a manuscript on formative research on sexual behavior of youth in South Africa to the Journal of Social Science & Medicine. They also presented formative research on attitudes toward partner notification for STDs at ISSTDR and initiated a randomized trial of two partner notification strategies for STDs.

Violence

A NCIPC staff member traveled to Pretoria, South Africa in July, 1997 to meet with staff of the Ministry of Health to develop the plan for the CDC-South Africa violence prevention initiative. Another staff member traveled as a member of a joint DHHS/DOJ team to discuss with Republic of South Africa Health Officials possible collaboration on a public health violence prevention project. The visit occurred in February of 1997.

Yellow Fever

NCID/DVBID staff provided diagnostic assistance and/or reference services.

SUDAN

Meningitis

NCID/DBMD assisted the WHO and the Ministry of Health in a assessment of meningococcal epidemic preparedness in Sudan. They evaluated laboratory capacity for *N. meningitidis* isolation and serotyping.

Sleeping Sickness

In June 1997, a prevalence survey was undertaken by CDC in Tambura County, Southern Sudan at the request of CARE. Approximately 60,000 people are at risk of infection with an estimated 9,000-12,000 in need of urgent CARE. As a result of the survey, CARE and the International Medical Corps received funding for sleeping sickness treatment in September from the Office of Foreign Disaster Assistance. Through CCHI funding, CDC epidemiologists will collaborate with the International Medical Corps and CARE in evaluating the impact of the sleeping sickness treatment after 9 months.

TANZANIA

Arenaviruses

NCID/DVRD presented " African Arena viruses -- Coevolution Between Virus and Murid Host?" at the International Workshop on Rodent Biology and Integrated Pest Management in Africa, Morogoro, Tanzania.

Emergency Response

CDC staff traveled to Tanzania in the first quarter of FY 97 to serve as UNHCR Health Coordinators for refugees resulting from Zaire' s civil war. Specific activities included a cholera outbreak investigation and coordination of NGO health activities during the establishment of refugee camps.

Malaria

NCID/DPD staff are conducting a multiyear collaborative project with CARE International in Burundian refugee camps in western Tanzania. The emphasis of the project is investigating appropriate malaria control activities and strategies for unstable refugee settings.

Operational Research

NCEH/IERHP staff traveled to Tanzania in August 1997 to collect information needed for the development and design of a CDC/CARE Initiative supported-study to be implemented in FY98: "Clinical Trial to Determine the Most Effective Method to Treat Moderate Anemia in Refugee Children in Kigoma Region, Tanzania." The study will evaluate the effect of iron and vitamin supplementation on the hemoglobin levels of anemic children receiving monthly presumptive malaria treatment versus those receiving standard case management of malaria. The information will directly effect treatment guidelines for malaria and anemia among refugee children.

TUNISIA

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

UGANDA

Arboviruses

NCID/DVBID provided consultation and diagnostic reagents and reference services for arboviruses to the Virus Research Center, and trained a Ugandan scientist in molecular entomology and phylogeny.

NCID/DVBID staff led an international team investigating on outbreak of O' nyong nyong fever in the Rakai and Masaka districts, Uganda.

Dengue

NCID/DVBID staff provided assistance to the Ministry of Health on epidemiologic, clinical and laboratory studies on an epidemic of acute-febrile illness.

Dracunculiasis

NCID/DPD staff provided two consultations to assist the National Secretariat for Eradication of Dracunculiasis to continue full operation during the absences of the Resident National Technical Advisor and National Program Manager. The consultant also monitored the status of case containment strategies in disease-endemic districts and made recommendations for improvements.

Genital Ulcer Disease

NCID/DASTLR is collaborating with Johns Hopkins University, Columbia University and the UVRI of the Ugandan Ministry of Health on a study to ascertain mass treatment of STDs in the Rakai District results in the reduction of HIV transmission. Data are being analyzed.

HIV/AIDS

NCHSTP staff are collaborating with Uganda' s Ministry of Public Health, the Uganda Virus Research Institue (UVRI) and USAID regarding HIV variant studies, a couples study, and other HIV/AIDS research and prevention studies. Technical assistance to the AIDS Information Center' s (AIC) couples study included data management and surveillance system development.

A CDC consultant provided guidance to a local Uganda NGO, TASO, in upgrading their decentralized, facility-based, computerized Management Information System(MIS) to use electronic e-mail to transmit data from external locations to headquarters. In addition, the consultant provided computer programming to update the MIS. The consultant also made three presentations to UNAIDS and WHO in Geneva. These presentations were of development work with the Uganda TASO and a computerized surveillance system developed for another country which is being considered as a model for use in WHO regional settings.

NCHSTP also provided technical assistance to a Uganda DISH project (Developing Integrated Services for Health). Assistance included workplans, budget, and mission prioritization of DISH sites for training and service integration including policy, protocols and HIV CT data system for new sites. It also included work on a basic counseling course outline, curriculum, certification, registration, pre-course materials, and rapid test counseling issues.

NCID/DASTLR staff, in collaboration with UVRI, has undertaken a population-based characterization of the urban and rural HIV epidemics in Uganda. The study involves surveillance for divergent strains and development of an epidemiologic profile of the epidemic which incorporates genetic subtype data. This project received the 1997 HHS Secretary' s Award for Distinguished Service. NCID/DASTLR staff have provided onsite consultation to Ugandan AIDS Information Centers, a USAID-funded counseling and testing project, which evaluates 65,000 clients annually. The consultation provided oversight of expansion of laboratory facilities to regional clinics and rural counseling sites.

STDs

NCHSTP staff provided technical support to USAID/Uganda and AMREF/Uganda on the midterm evaluation of the impact of syndromic training of medical officers, medical assistants, midwives and nurses provided by USAID-funded DISH Project.

Syphilis

NCID/DASTLR staff, in collaboration with NCHSTP/DSTDP and the Ugandan MOH, has agreed to a) train Ugandan staff in the technique for obtaining microtainer blood for the immediate testing of women for syphilis; b) review a newly developed training module for nurses/midwives on conducting tests for syphilis at antenatal clinics; and c) review a newly established reference STD clinic.

Yellow Fever

NCID/DVBID provided consultation and reagents on diagnosis of yellow fever to the Virus Research Center.

ZAMBIA

Malaria

NCID/DPD staff conducted a study of local perceptions of malaria and practices for treatment of malaria. This study was followed by a study of malaria therapy efficacy of chloroquine, pyrimethamine/ sulfadoxine, and pyrimethamine/ sulfadoxine + paracetamol, with emphasis of caregiver' s perceptions of therapy efficacy during an actual treatment episode.

NCID/DPD staff performed an assessment of the use and quality of blood smear diagnosis malaria in health centers with existing microscopic capabilities in several sites around Zambia.

ZIMBABWE

Health Assessment

NCEH/IERHP staff assisted the American Red Cross (Amcross) in conducting a Primary Health Care Program Design Mission to assess the needs of communities, design interventions in collaboration and through partnerships with National Red Cross and Red Crescent Societies and local health authorities, and plan for the financial and institutional sustainability of the program benefits after the end of the program.

Hemorrhagic Fever Viruses

NCID/DVRD provided reference diagnostic tests and skin snip biopsy kits for Ebola virus and continued provision of reference diagnosis for the purpose of surveillance for viral hemorrhagic fevers.

Occupational Health

The Director of NIOSH and another NIOSH researcher attended the 12th International Symposium of Epidemiology in Occupational Health (ISEOH) on risk reduction in the workplace. The Director chaired a committee session on occupational health.

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

The Americas

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ARGENTINA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services for arboviruses.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH has provided the Programa de Evaluacion Externa de Calidad, La Plata, Argentina with consultation to help them establish their Abell-Kendall cholesterol method with the goal to become a member of the Cholesterol Reference Method Laboratory Network They believe that they are ready to pursue this goal.

NCEH provided standardization support services to lipid research laboratories in the following institution: Laboratorio de Analisis Clincos, San Juan.

Dengue

NCID/DVBID staff provided laboratory diagnostic reagents, and diagnostic services and reference services for suspected cases of dengue.

Diarrheal Diseases

NCID/DVRD helped establish a rotavirus surveillance program in Argentina.

Hantavirus

NCID/DVRD collaborated with scientists at the Instituto Nacional de Enfermedades Virales Humanas (INEVH) to study and identify cases of Hantavirus Pulmonary Syndrome (HPS). Staff provided reference diagnostic hantavirus testing, reagents, pathology consults, and technical advice.

NCID/DVRD provided personnel, lab training and supplies in response to a HPS outbreak in Argentina. Molecular biology training and lab support was provided for Malbran.

NCID/DVRD met with representatives from INEVH, Salta, and Rio Negro and finalized plans for collaborative work to study the distribution and long-time dynamics (mark-recapture grids) of hantaviruses in the three provinces. Staff assisted Argentine national and provincial public health personnel with the investigation of an outbreak of Hantavirus Pulmonary Syndrome in El Bolson and Bariloche, Provincia de Rio Negros, Argentina.

NCID/DVRD provided reference/diagnostic pathology support including histopathological expertise and immunohistochemical diagnostic testing for hantavirus.

Hepatitis

NCID/DVRD has an ongoing collaboration with investigators at the University of Buenos Aires on characterization of HCV genotypes, and on the evaluation of rapid lateral flow test for the detection of HBsAg.

Influenza

NCID/DVRD is continuing into the third year of a collaborative study with the FUNCEI (Fundacion Centro de Estudios Infectiologicos) in Buenos Aires for a serologic study to determine the effect of multiple influenza vaccinations on the antibody response to influenza vaccine.

Meningitis

NCID/DBMD collaborated with Argentinean Ministry of Health and Finlay Institute of Havana, Cuba, on case-control vaccine strategy of a serogroup B meningococcal vaccine in infants and young children. The results of this study will be critical in determining if outer membrane protein-based serogroup B meningococcal vaccine provide protection in children less than 4 years of age.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid stimulating hormone and phenylketonuria screening tests to Argentina' s seven neonatal screening laboratories located in La Plata, Buenos Aires (3), Capitol Federal and Cordora. Data analyses were performed and reports were developed for these laboratories.

Nosocomial Infections

NCID/HIP personnel provided consultations for surveillance activities in nosocomial infections.

Oral Health

NCCDPHP/DOH provided technical assistance to the Government of Argentina on the engineering aspects of water fluoridation to Government Dental Health Personnel, Drinking Water Engineers, University Personnel, and Private Consulting Engineers.

Rabies

NCID/DVRD co-hosted a virologist from the Instituto Nacional de Enfermedades Virales Argentinas during a visit to CDC to obtain consultation and training concerning technical aspects of performing PCR for the detection of arenaviruses in rodent and human tissues from arenavirus-endemic areas of Argentina. DVRD staff provided reagents to investigators at the Instituto Panamericano de Proteccion de Alimentos y Zoonosis for molecular typing of rabies variants.

Tuberculosis

NCID/DASTLR, in collaboration with NCHSTP/Division of Tuberculosis Elimination (DTBE), performed restriction fragment length polymorphism (RFLP) typing of *Mycobacterium tuberculosis* isolates, confirmed antimicrobial resistance in *M. tuberculosis* isolates, and performed molecular characterization of antimicrobial resistance mechanisms in select *M. tuberculosis* isolates in support of an outbreak of multidrug-resistant tuberculosis (MDR-TB).

ARUBA

Dengue

NCID/DVBID staff provided laboratory diagnostic services and reference services for suspected cases of dengue**.**

BARBADOS

Dengue

NCID/DVBID staff provided consultation to PAHO's Caribbean Cooperation in Health-Government of Italy dengue prevention project at the final all-Caribbean workshop.

BOLIVIA

Bolivian Hemorrhagic Fever

NCID/DVRD provided reference diagnostic testing for Bolivian hemorrhagic fever. They also diagnosed additional cases submitted by the Secretary of Health.

Congenital Syphilis

NCID/DASTLR, in collaboration with NCHSTP, Mothercare, and Bolivian researchers, participated in a study of syphilis among pregnant women. Pregnant women were tested for syphilis at the time of delivery at four maternity hospitals in Bolivia. Mothers with reactive rapid plasma reagin (RPR) and FTA-ABS tests and live-birth infants were treated for syphilis.

The rates of seroreactivity were 4.4% in mothers of live-birth infants and 26% in mothers of still-birth infants. Serum from 1472 mothers and 1429 live-birth infants and umbilical cord samples from the infants of all the mothers enrolled were collected. Sera from infants whose mothers tested reactive for syphilis in the serologic tests were tested in the IgM EIA and Western blot. Pathology, direct fluorescent antibody, and immunohistochemical staining was done on the umbilical cords samples from these infants and on 10% of the infants from seronegative mothers.

Results of the umbilical cords testing are being evaluated against the IgM tests. This will provide a good indication of the true sensitivity of these serologic tests for congenital syphilis. Syphilis testing and treatment during prenatal clinic visits has been strongly recommended to reduce the incidence of congenital syphilis and still-births.

Dengue

NCID/DVBID staff provided consultation to the Tropical Disease Center, Rotarians and the Municipal Department of Health of Santa Cruz de la Sierra to help develop a dengue surveillance and prevention program, provide training to a visiting scientist on dengue diagnostic techniques, and to provide laboratory diagnostic services and reference services for suspected cases of dengue.

Diarrheal Diseases

NCID/DBMD completed a collaborative study of dysentery in Bolivia. Amebiaisis was extremely rare. Shigellae were isolated from 39 (29%) of 133 children <5 years old with bloody diarrhea and 87% of isolates were resistant to both ampicillin and trimethoprim-sulfa. Nalidixic acid resistance was not detected. Modifications to the current standard treatment algorithms were suggested to the Ministry of Health. DBMD published a manuscript on the dysentery investigation.

NCID/DBMD also published a manuscript describing a pilot study of water vessels and point-of-use disinfectant in peri-urban Bolivia. Staff submitted a manuscript on a 5-month trial of the disease prevention efficacy of the water vessel intervention in Montero, a small town near Santa Cruz, Bolivia. The trial showed nearly a 50% reduction in diarrheal disease episodes among intervention families compared with controls. Local production, use, and sale of the disinfectant to neighboring villages has continued. Researchers secured funding for a multi-community intervention trial. The trial will rely on a marketing strategy developed in collaboration with Population Services International to encourage purchases and proper use of the vessel and disinfectant. Baseline surveys have been completed. Funding from the Procter & Gamble Fund and Rotary International allows production of the plastic water storage vessels in Bolivia, an essential step in wider implementation of this intervention. Production has begun and will be self sustaining if vessels are sold at $3.00.

Helicobacter pylori

NCID/DBMD performed a study to determine baseline seroprevalence of *H. pylori* and rates of anemia among children aged 6 months to 6 years. Over 40% of 1,400 children tested were infected with *H. pylori* and over 30% were anemic. To evaluate the potential for a point-of-use disinfection and safe water storage system to reduce seroconversion rates for *H. pylori* and prevent anemia, these children will be re-tested nine months after intervention is introduced.

HIV/STDs

NCID/DASTLR staff, in collaboration with NCHSTP and USAID/Bolivia, provided consultation to impact HIV prevalence by improving STD clinical services, laboratory services, surveillance, and training in La Paz at the model clinic and the National Reference Laboratory. Staff assisted in the initiation of project activities in three additional cities: Santa Cruz, Cochabamba, and El Alto. Staff also initiated the use of EIA tests for chlamydia to enable large-scale testing in three cities. To date, the project has been extremely successful in decreasing STD prevalence in the population.

DASTLR expanded the STD/AIDS control project to 5 of the 9 health districts in the country and provided technical support to Ministry of Health (MOH) personnel for the preparation of 10 presentations on project activities at the Panamerican Congress on STDs/HIV in Lima, Peru.

BRAZIL

Antimicrobial Resistance

NCID/DBMD collaborated with the Federal University of Rio de Janeiro on evaluating emerging antimicrobial resistance among enterococcal isolates. Staff assisted collaborators with the serotyping and antimicrobial susceptibility testing of isolates of *Streptococcus pneumoniae*.

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services for the detection of arboviruses.

Chagas' Disease

NCID/DPD participated in meetings aimed at planning a three-way collaboration among scientists at Fundacao Oswaldo Cruz (FIOCRUZ), University of Rio de Janeiro, and CDC regarding research programs with triatomine vectors of Chagas' disease (i.e., population genetics and symbiont-mediated modification of vector competence). This will allow Brazilian doctoral students to train at CDC. NCID/DPD also participated in the annual International Meeting on Basic Research on Chagas' disease in Caxambu, Brazil, presenting a paper on triatomine biology and phylogenetics.

Cyclospora

EPO staff continued studying the epidemiology of Cyclospora in Fortaleza, Brazil, in collaboration with the Division of Parasitic Diseases, NCID.

Dengue

NCID/DVBID staff were co-organizers of the First International Seminar on Dengue in Rio de Janiero, Brazil, October 6-9, 1996. They collaborated with Brazilian scientists in the development of second generation recombinant dengue vaccines candidates at Fiocruz and continued collaborative studies with Brazilian scientists to genetically characterize virus strains isolated in Brazil from humans and mosquitoes. Staff also provided training to a visiting scientist on the laboratory diagnosis of dengue and provided diagnostic reagents and reference service, as well as laboratory diagnostic services and reference services for suspected cases of dengue.

Hantavirus

NCID/DVRD collaborated with scientists at the Fundacao Adolfo Lutz to study and identify cases of hantavirus pulmonary syndrome. They provided laboratory training and technical advice for hantavirus testing, provided hantavirus reagents, advised public health officials in the Sao Paulo region on the clinical manifestations of Sabia hemorrhagic fever and hantavirus pulmonary syndrome, and demonstrated the components of an effective surveillance system for these diseases.

Hepatitis

NCID/DVRD collaborated with the Bhutatan Institute, Sao Paulo, to prepare recombinant hepatitis B surface antigen encoding for the prevailing subtype in South America.

Histoplasmosis

NCID/DBMD and the Oswaldo Cruz Institute in Rio de Janeiro, Brazil, through a series of research visits, have developed a firm working relationship leading over the past three years to advancements in laboratory methods for the immunodiagnosis of histoplasmosis. This year the complete cloning and sequencing of the immunodominant —antigen of *Histoplasma capsulatum* was accomplished, an invention report filed, and the sequence deposited in Gen-Bank This advance has positive implications for a new generation of diagnostic test methods and for a potential vaccine candidate for histoplasmosis. This research was reported at the 1997 annual meeting of the American Society for Microbiology and a manuscript was prepared for

publication. The M antigen is expressed early in acute pulmonary histoplasmosis and is a useful diagnostic marker of infection with *H. capsulatum.*

HIV

NCID/DASTLR staff is collaborating with the Brazilian government to investigate the molecular epidemiology of HIV in Brazil. Staff provided technical support to the Brazilian Ministry of Health and HIV Network through the training of Brazilian nationals in molecular biologic laboratory methods and HIV phylogenetic analysis. DASTLR also serves as a reference center for HIV genetics in support of the Brazilian HIV Surveillance Program.

Human Herpes Viruses

NCID/DVRD staff collaborated with investigators in Sao Paulo to develop improved methods for diagnosis of Human Herpes Virus-6(HHV-6) and Human Herpes Virus-7(HHV-7) infections in cases of fever or exanthem of unknown origin.

Leishmaniasis

NCID/DPD is collaborating on a research program with colleagues at the Instituto Oswaldo Cruz in Manaus. The purpose of the research is to use advanced parasite classification techniques, including PCR, monoclonal antibody binding patterns, and kDNA analysis, to determine if parasite diversity predicts human disease diversity.

Malaria

NCID/DPD, in collaboration with Instituto Evandro Chagas, continued ongoing research on the identification of a *Plasmodium vivax* - like human malaria parasite. These activities, which have until now focused on entomologic, immunologic, and molecular biologic studies, will now include epidemiologic and clinical studies.

Measles

EPO participated in an investigation of a widespread outbreak of measles, primarily among young adults, in Brazil.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead, and with analysis of biological specimens for trace elements as part of a hemodialysis study in Brasilia.

Microsporidiosis

NCID/DPD developed studies to isolate, culture, and identify microsporidia using immunodiagnosis and PCR organisms isolated from HIV patients.

Mycobacterium tuberculosis

NCID/DBMD assessed seven health care facilities in Brazil for their risk of nosocomial transmission of TB and conducted 1) a multicenter study on the risk of TB transmission among health care workers and health care students in Brazil and 2) a study on the effects of BCG vaccine on TST positivity among nursing and medical students in Brazil.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease and homocystinuria screening tests to Brazil' s six neonatal screening laboratories located in Golania, Puerto Alegra, Sao Paulo, Curitiba-Parana, Minas Gerais, and Anapolis-Goias. Data analyses were performed and reports were developed for these laboratories.

Nosocomial Infections

NCID/HIP laboratory personnel collaborated with and assisted two HIP medical epidemiologists investigating an outbreak of overwhelming sepsis and deaths in newborn nursery patients in a remote jungle hospital in Brazil. Personnel provided laboratory assistance at CDC by sampling a variety of commercially-prepared hospital IV medications (e.g., bi-distilled water, 25% and 50% glucose, aminophylline, calcium gluconate, D5W, sodium and potassium chloride solution, and sodium bicarbonate solution), and 70% alcohol and tincture of iodine for the presence of intrinsic microbial contamination. In addition, HIP staff determined microbial counts and identified microorganisms recovered from tap water used at this sequestered healthcare facility.

Occupational Health

NIOSH/DSHEFS. A NIOSH industrial hygienist visited Brazil from August 10 – August 17, 1997 as part of a CDC sponsored project providing guidance to developing countries on tuberculosis control. This investigation focused on site visits to the Rio de Janeiro University hospital, a municipal outpatient clinic, and a state tuberculosis sanatorium. Additionally, meetings were held with Brazilian officials to discuss CDC tuberculosis control recommendations from site visits in other countries.

NIOSH staff participated in the Seminário Internacional de Entidades Governamentalis na Área de Segurança e Saúde no Trabalho [International Seminar of the Government Organizations

Involved in Occupational Safety and Health] held in Brasilia on March 17-19 and São Paulo on March 20-21, sponsored by Brazil' s FUNDACENTRO. FUNDACENTRO was established October 21, 1966 and this meeting was an extension of their 30-year observation. Overviews of their organization and its mission were given by representatives of FUNDACENTRO. The purpose of the conference was to seek opportunities for collaborations between FUNDACENTRO and the participating agencies, and also to increase international recognition of FUNDACENTRO in anticipation of the 1999 World Congress on Occupational Health that is to be held in São Paulo.

Plague

NCID/DVBID provided diagnostic reagent for plague.

Pyrogenic Reactions and Respiratory Distress

NCID/HIP staff conducted laboratory support and consultation for an epidemic investigation of pyrogenic reactions and respiratory distress associated with the reuse and reprocessing of cardiac catheters at a hospital in Belo Horizonte, Brazil. Staff received cardiac catheters, water used to rinse and reprocess the catheters, contrast fluid, heparin, and enzyme cleaner for testing. Cardiac catheters were found to contain 0-1,355 EU/ml of bacterial endotoxin. The water used to reprocess these single use devices was also found to contain high levels of heterotrophic gram-negative water bacteria and extremely high 10ÿ-10^3 EU/ml. Recommendations included no reuse of cardiac catheters, eliminating the use of tap water, to stop use of deionized water and the enzyme cleaner in the reprocessing procedure and to replace these items with ultrapure water containing <5EU/ml and <1CFU/ml.

Respiratory Viruses

NCID/DVRD is continuing a collaboration with investigators from Brazil to study the effect that strain specific immunity has on susceptibility to respiratory syncytial virus (RSV) infections and to characterize the immune response to RSV infection in young children.

Schistosomiasis

NCID/DPD staff were co-investigators in a project that examines the immunologic status of patients with *Schistosomia mansoni* . This study is currently evaluating if patients who are resistant to reinfection after chemotherapeutic cure have different cellular and humoral immune profiles than those who are still susceptible. The effects of the number of treatments on resistance will be determined. This study is also investigating the cytokine profiles of patients with asymptomatic versus hepatosplenic disease.

Surveillance

NCCDPHP/DNPA led a team of epidemiologists that created and taught CDC' s first Data for Decision Making (DDM) course in Fortaleza, Ceara. Fifty Brazilian public health staff learned how to use surveillance data to guide policy and program decisions and developed practical plans for improving cardiovascular disease and other health surveillance and prevention activities at

the state and national levels. Participants will teach the course to local public health staff. This course will be used as a model for developing DDM programs throughout Brazil.

Violence

EPO collaborated on a study of the cost of violence in Rio de Janeiro, Brazil.

CANADA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services, and initiated collaborative program on the development of genetically engineered antibodies to arboviruses.

Cardiovascular Disease: Cholesterol and Related Lipids

Canadian Reference Laboratory (1996) Ltd. (CRL), Vancouver, Canada: This laboratory was established to serve the needs of the clinical chemistry community in Canada and therefore serves as the support center for standardization of lipid measurements in Canada. The CRL operates a blinded external proficiency testing program that uses fresh serum pools with values assigned by the reference methods for TC and HDL, and a CDC-standardized method for TG. This program, called LIPID-I (TC and TG only) or LIPID-II (includes HDL, LDL, apo AI and apo B), has about 150 subscribers. It has been shown to have improved the measurement of lipids and lipoproteins in its subscribers. CRL also provides calibrators, survey-validated quality control materials, and internal quality control materials and publishes an educational newsletter. CRL also performs validations for clinical laboratories and manufacturers and performs medical device evaluations.

This laboratory is also involved in standardizing clinical trial laboratory measurements and provides core laboratory and data management services for clinical research groups.

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Lipid Research Clinic- St. Michael' s Hospital, Toronto, Ontario

Lipid Metabolism & Atherosclerosis Research - Institut de Recherches Clinizues, Montreal, Quebec

Montreal Heart Institute, Montreal, Quebec
Clinical Biochemistry - Royal Victoria Hospital, Montreal, Quebec

Lipid Lab/Chemistry, Department of Pathology - St. Paul' s Hospital, Vancouver, BC

University of Ottawa Heart Institute Lipoprotein & Atherosclerosis Research Group, Ottawa, Ontario

Department of Clinical Chemistry - Hospital Sainte-Justine, Montreal, Quebec

MDS Health Group Ltd Technical Services, Toronto, Ontario

Department de Biochimie, Complexe Hospitalier de la Sagamie, Chicoutimi, Quebec

Cryptosporidiosis

NCID/DPD staff exchanged samples from U.S. and Canadian *Cryptosporidium* outbreaks for the purpose of establishing collaborative efforts focused on molecular typing and phylogenetics.

Environmental Health

NCEH staff attended and participated in the North American Collaborating Center Annual meeting on the revision of the International Classification of Impairments, Disabilities, and Handicaps. The meeting was held in Ottawa, Canada and attended by individuals from the USA, Canada, The Netherlands, France, Australia, Sweden, WHO and others. Progress was made in developing a framework in which the outcome of participation in usual social roles was seen as the health goal to be achieved and the importance of the effect of environment on that outcome was seen as a major part of the framework.

ATSDR' s Great Lakes Human Health Effects Research Program has funded research on the health effects of contaminants in the Great Lakes. As part of its work in this region, ATSDR has collaborated with Canadian health and environmental agencies on Great Lakes health issues. In FY 1997, ATSDR co-sponsored, with Health Canada and the Quebec Ministry of Health and Social Services, Health Conference '97—Great Lakes/St. Lawrence, an international conference that focused on the effects of the environment on human health. This conference culminated the first 5 years of ATSDR' s Great Lakes research program and highlighted its findings to date.

Also in FY 1997, ATSDR presented its preliminary research findings at the International Joint Commission Wingspread Conference on Policy Implications of New Evidence Regarding Toxic Substances and Human Health. These new findings resulted in recommendations to the International Joint Commission to continue its efforts to encourage both the United States and Canada to reduce the levels of persistent toxic chemicals in the environment.

Hantavirus

NCID/DVRD genetically characterized viruses from Canadian rodents and provided reagents to the Laboratory Centre for Disease Control, reference diagnostic hantavirus testing, and pathology consults. They also provided reference laboratory backup and continued reagents backup and training for Molecular Biology.

NCID/DVRD provided pathology consultation and immunohistochemical testing on suspect cases of HHV6, RMSF and hantavirus pulmonary syndrome, and participated in courses at the

University of Calgary and Alberta addressing emerging infections including hantavirus pulmonary syndrome, Ebola fever virus, and leptospirosis.

Health Promotion

NCCDPHP/DACH collaborated with Health Canada and the WHO-EURO Working Group on the Evaluation of Health Promotion Initiatives to increase the quality, appropriateness, and utilization of evaluations of health promotion programmes and policies in developed countries. The working group commissioned and synthesized background papers on evaluation issues in health promotion, sought and incorporated the views of policymakers, practitioners and evaluators, and produced reports of its work. A report intended to stimulate a dialogue with policymakers and other decision-makers who could influence the allocation of resources to evaluation of health promotion initiatives is scheduled for release on April 3, 1998.

Hemochromatosis

Hemochromatosis is one of the most common genetic disorders in humans with a prevalence of 3-5 per 1000. The gene for hereditary hemochromatosis was recently identified and two mutations were found. In collaboration with Dr. Paul Adams in the University of Western Ontario, the Molecular Biology Branch of NCEH/EHLS is developing assays for use in studies of these polymorphisms.

Hepatitis

NCID/DVRD has an ongoing collaboration with the National Health Department and university investigators to investigate the persistence of hepatitis A virus (HAV) in ground water following an outbreak of disease associated with a well contaminated by a septic tank.

Invasive Bacterial Disease

NCID/DBMD collaborated with researchers at Mt. Sinai Hospital and others in Toronto on population-based surveillance for invasive disease due to *Haemophilus influenzae, Neisseria meningitidis*, group B streptococcus, *Listeria monocytogenes,* and *Streptococcus pneumoniae*. Toronto collaborators were part of three CDC multi-site case-control studies of risk factors for invasive meningococcal disease and invasive pneumococcal disease (in pediatric and adult populations), and on identifying missed opportunities for prevention of perinatal group B streptococcal disease.

Laboratory Proficiency Testing

Similar to the other MPEP project areas, including HIV-1 and HTLV-I/II antibody testing performance evaluation, PHPPO's MPEP assesses the quality of testing for laboratories that perform HIV-1 RNA determinations. Although this program was intended primarily for

laboratories located in the United States, because performance evaluation samples are packaged in dry ice and must be received by the laboratories within 48 hours, shipment to laboratories located in Canada could arrive within that time period and laboratories located in Canada were allowed to enroll in this recently implemented (1997) MPEP project area. Of the 200 laboratories that participate in this MPEP project area, 11 of these laboratories are located in Canada. Laboratory performance is assessed through the use of HIV-1 plasma sample panels mailed twice annually.

PHPPO's MPEP also assesses the quality of testing for laboratories that perform HIV-1 p24 antigen testing. Of the 185 laboratories that participate in this MPEP project area, 10 of these laboratories are located in Canada. Laboratory performance is also assessed through the use of HIV-1 plasma sample panels mailed twice annually.

Lyme disease

NCID/DVBID staff provided diagnostic assistance and reference service for lyme disease. Putative *B. burgdorferi* cultures from British Columbia were confirmed. DVBID staff provided reference cultures of *B. burgdorferi* from a CDC collection as well as diagnostic assistance and/or reference service.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead. A workshop on blood lead analysis was presented at a trace elements conference.

Mine Studies

NIOSH/PRL participated in the 11th International Conference on Coal Research and the Committee Meeting of the ICCR. There appears to be an increasing recognition of the need for "systems safety". Specifically, health and safety issues cannot be considered independently, and as an adjunct to other operations. The more rapidly the entire industry accepts this premise, the sooner there will be a significant gain in workplace health and safety. One item that needs to be watched carefully is an apparent trend toward coal being traded as a commodity. This is contrasted to the current practice of long-term supply contracts (plus the short-term spot market). The implications of coal being traded as a commodity is that price is the most important consideration. With such a market structure, there would be increased pressure on reducing all costs, including those related to health and safety.

A NIOSH researcher observed and consulted on the protocol for a diesel aerosol sampler and analytical method comparison study at INCO Inc. The primary thrust of the study was to compare diesel exhaust measurements using the NIOSH/USBM size selective sampler with results from respirable combustible dust analysis. MSHA is currently establishing a diesel

standard in the United States and Canada is considering changing their standards to be compatible.

Motor Vehicle Injuries

An NCIPC researcher attended the 40th annual meeting of the Association for the Advancement of Automotive Medicine in Vancouver, Canada to learn the latest advances on medical research in the motor vehicle area from international experts in the field. She made contacts for future collaborative research efforts and learned applications of the injury severity scale for future research projects.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease and homocystinuria screening tests to Canada' s 9 neonatal screening laboratories located in Winnepeg, Vancouver, Regina, Edmonton, Saint John, and Etobicoke. Data analyses were performed and reports were developed for these laboratories.

NCEH conducted performance evaluations for HIV antibody testing on dried-blood spots in Ottawa. Quality control material have been validated and distributed to assist in determination of seroprevalence among child-bearing women.

A Canadian Ministry of Health official is collaborating on calibration of fluorescence and quality control materials for flow cytometry with CBB personnel.

Nosocomial Infections

NCID/HIP consulted with a hospital in Winnipeg on the proper cleaning and disinfection of whirlpools and hubbard tanks used in physical therapy.

Occupational Exposure

NIOSH/HELD/PPRB. A researcher from the University of Calgary, Alberta, Calgary, Canada visited NIOSH, Morgantown and participated in National Coal Workers' Autopsy Studies. This collaborative work has been a major discussion at the 9th International Conference on Lung Disease in Kyoto Japan in October 1997. Final evaluation of these studies will be completed in 1998 and results will be published in 1998.

Occupational Hazards

A NIOSH/DRDS staff member attended the Ad Hoc Committee Meeting for DEEP, the Diesel Emissions Evaluation Program, which is a cooperative Government-Labor-Industry group with stakeholders from various segments of the Canadian mining industry. The ad hoc Diesel Committee agreed that the goal of reducing exposure to diesel emissions was best accomplished by collaboration of the several sectors having a stake in reducing exposure. These sectors include mine operators, labour, regulators, fuel and additive producers, equipment (machine, engine, and exhaust emission controls) manufacturers, and Canadian and U.S. research agencies. The committee further endorsed the concept of a North American consortium to conduct diesel research and appointed a Steering Committee to guide the formation of the consortium and to specify objectives of DEEP.

NIOSH/DSHEFS. A NIOSH researcher was invited to present his research on *Fire Fighters' Occupational Noise Exposure and Hearing Loss* at the 14th Symposium on the Occupational Health and Hazards of the Fire Service in Toronto, Canada. NIOSH has been actively involved in documenting firefighters' noise exposures related to their occupation and the associated hearing loss through NIOSH' s Health Hazard Evaluation Program.
A NIOSH researcher observed and consulted on the protocol for a diesel aerosol sampler and analytical method comparison study at INCO Inc. The primary thrust of the study was to compare diesel exhaust measurements using the NIOSH/USBM size selective sampler with results from respirable combustible dust analysis. MSHA is currently establishing a diesel standard in the United States and Canada is considering changing their standards to be compatible.

Occupational Health

NIOSH/DSHEFS. A NIOSH researcher presented a poster entitled, *Mortality Patterns Among the International Union of Bricklayers and Allied Craftworkers (IUBAC) 1986-1991* at the Society for Epidemiologic Research, Edmonton, Alberta, Canada on June 12-14, 1997. The study reported on evaluated the mortality of 10,400 members of the International Union of Bricklayers and Allied Craftsmen for the period 1986-1991. For deceased white males, significantly elevated mortality ratios were observed for malignant neoplasm of the trachea, bronchus, and lung; emphysema; pneumoconiosis; and asbestosis. A similar pattern was observed for nonwhite males. Results support previous reports of an excess of respiratory cancer possibly due to cement dust, asbestos, and silica. Clearly smoking cessation programs and education regarding hazards are needed. Additional preventive action minimizing asbestos and other exposures is needed.

NIOSH/DSHEFS. A NIOSH researcher presented a paper entitled *Mortality Patterns among the International Brotherhood of Electrical Workers* at the 30th Annual Meeting of the Society for Epidemiologic Research in Edmonton, Alberta, Canada, in June, 1997. The study evaluated the mortality experience of 31,068 members of the U.S. Electrical Workers' Union who worked in the construction industry and died between 1982 and 1987. The findings of excess cause-specific mortality for several kinds of cancer and electrocution may be compared with

findings from international studies of electrical workers. The results overall suggested that construction electrical work is a hazardous trade and that more detailed investigation of occupational risk factors is needed.

Pertussis

NCID/DBMD collaborated with the Commonwealth of Alberta and the University of Alberta in the preliminary development, evaluation and validation of detection of urinary antigen for pertussis laboratory diagnosis. Development of such a test could substantially improve surveillance and diagnosis of pertussis.

Plague

NCID/DVBID staff provided reagents and controls for the serodiagnosis of plague.

Relapsing fever

NCID/DVBID staff provided diagnostic assistance and reference service.

Respiratory Viruses

NCID/DVRD is continuing a collaboration with investigators from Mount Sinai Hospital, Toronto, Canada, to characterize RSV isolates from an apparent nosocomial RSV outbreak.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases, rickettsial diagnostic reagents for the confirmation of rickettsial diseases, and collaborated with University of Saskatchewan to test feline sera for evidence of *Bartonella henselae* and *B. clarridgeae* infections.

Strongyloidiasis

NCID/DPD continues a longitudinal study of antibody persistence, post-therapy, with Toronto General Hospital.

Suicide Prevention

A NCIPC researcher attended an expert advisory group meeting on evaluative research on suicide prevention programs for young people in Montreal, Canada. He worked with the Mental Health Division of Health Canada.

Syphilis

NCID/DASTLR staff evaluated three lots of Toluidine Red Unheated Serum Test (TRUST) reagent produced by the Laboratorie de Santé Publique du Québec. One lot met the CDC specifications for non treponemal tests. In addition, staff members evaluated five lots of RPR produced by Pulse Scientific, Inc., all of which met the criteria for acceptability. NCID/DASTLR staff provided diagnostic evaluation for three samples from Canada. A total of 15 serologic tests for syphilis were run.

Tobacco Control

NCCDPHP/OSH' s collaborative tobacco use prevention efforts with Canada continues with the goal of establishing an international partnership on tobacco issues, including the prevention of tobacco use among youth. OSH has fostered a strong relationship through communications, collaborations, and meetings, and continues to explore opportunities for collaborative research with Canada.

Tularemia

NCID/DVBID provided diagnostic testing of tularemia culture and serology.

Violence

A NCIPC violence researcher presented a paper at the Society for Epidemiologic Research International Meeting in Edmonton, Canada in June, 1997.

CHILE

Cardiovascular Disease: Cholesterol and Related Lipids

SAB is collaborating with the Pan American Health Organization (PAHO) to develop a model system in the Latin American and Caribbean Countries to produce valid lipid measurements necessary for developing and implementing cardiovascular disease prevention programs. CARMEN is a project developed and conducted by PAHO to set the policies and implement the required interventions to reduce the prevalence of risk factors associated with noncommunicable diseases, such as heart disease, and thus control and prevent morbidity and mortality from these diseases. The Pontificia Universidad Catolica de Chile, Santiago was selected by PAHO to be the central laboratory for CARMEN in Chile. A laboratorian from this facility attended three days of training at CDC. This training, conducted by EHLS staff as well as staff from the Office of Health
& Safety, focused on issues related to the standardization of lipid and lipoprotein measurements and included instruction in statistical quality control, measurement improvement and standardization, biosafety, and a tour of laboratories including the CDC' s lipid reference and NHANES laboratories.

NCEH provided standardization support services to lipid research laboratories in the following institution: Pontificia Universidad Catolica de Chile, Santiago

Diarrheal Diseases

NCID/DVRD helped document astrovirus gastroenteritis in children in Chile and supported rotavirus surveillance programs.

Hantavirus

NCID/DVRD provided support for an outbreak investigation of hantavirus pulmonary syndrome. DVRD sent investigators to Chile and also hosted lab personnel for in Atlanta for outbreak and lab training.

NCID/DVRD provided reference/diagnostic pathology support including histopathological expertise and immunohistochemical diagnostic testing for hantavirus and leptospirosis.

Health Promotion

NCCDPHP/DNPA participated in world productivity meetings addressing the evolving relationship between productivity and health, including planning and implementing the 10th World Congress on Productivity (Santiago, 1997). A paper is projected for the next World Congress (Edinburgh, 1999).

Influenza

NCID/DVRD provided laboratory equipment (lyophilizer) to the Instituto de Salud Publico, Santiago, Chile, to assist in the improvement of international influenza laboratory surveillance in the southern hemisphere.

NCID/DVRD helped conduct a workshop on diagnosis of influenza and respiratory viruses in April 1997.

Mine Studies

A NIOSH team conducted an assessment of the occupational health and safety programs at the El Teniente Mine Division of the National Copper Corporation, including occupational health and safety practices at the concentration plants and the smelter. The NIOSH team spent several days visiting the underground mine, crushing plant, concentrator and smelter. The team agreed that there were five major areas in which El Teniente could make major health and safety improvements. These included changes in the corporate structure to create a safety and health position in the upper management of the company; incorporating new outcome measures for evaluating overall corporate health and safety; improving communications to better reinforce the importance of health and safety in the general workforce and to gain union involvement in this

area; making additional control technology improvements with the assistance of outside consultants; and improving corporate health screening and monitoring programs.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Chile' s neonatal screening laboratory located in Santiago. Data analyses were performed and reports were developed for this laboratory.

Oral Health

NCCDPHP/DOH provided technical assistance to the government of Chile on the engineering aspects of water fluoridation. Staff provided advice on how to improve existing and future fluoridation equipment designs. Staff also presented a short course on the design and installation of water fluoridation systems to Chilian Dental Health Personnel, Drinking Water Personnel, and others.

Pneumonia

NCID/DBMD collaborated with WHO on a study of pneumonia in infants.

Respiratory viruses

NCID/DVRD collaborated with PAHO and WHO in conducting a course on *Diagnosis of Influenza and Other Respiratory Viruses* in Santiago, Chile.

Silicosis

A NIOSH/DRDS scientist participated as lead international faculty in the Asociacion Chilena De Seguridad (ACHS)-sponsored seminar/training workshop on reading thoracic radiographs according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconioses, held in Santiago and La Serena, Chile. This dual-venue seminar was attended by over 30 physicians from throughout Chile. In addition to chest radiographic training, the seminars included lectures on occupational respiratory diseases and public/occupational health prevention strategies. NIOSH also assisted in the development and implementation of the Chilean certification examination for proficiency in pneumoconiosis chest radiographic classification. To our knowledge, this is the first certification program designed outside of the United States.

COLOMBIA

Antimicrobial Resistance

NCID/DBMD, in collaboration with the Field Epidemiology Training Program (FETP) and the Instituto Nacional de Salude (INS), conducted a study to determine the clinical impact of drug resistant *Streptococcus pneumoniae* (DRSP) infections among children <5 years old hospitalized in three Colombia cities: Bogota, Cali, and Medallin. A PAHO sponsored 'SIREVA' project in Latin America provided background surveillance data regarding antimicrobial susceptibility of invasive *Streptococcus pneumoniae* isolates. Investigators retrospectively reviewed medical records from cases of DRSP infection and from controls with drug susceptible infection. A collaborator from Colombia spent a week in Atlanta analyzing data.

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services and provided training to a visiting scientist on laboratory diagnosis of VEE and provided diagnostic reagents.

Cysticercosis

NCID/DPD is collaborating with the Instituto de Neurologico de Antioquia in Medellin in a scientific exchange of knowledge and reagents for the serodiagnosis of cysticercosis.

NCID/DPD is participating in a regional consortium to train young scientists in how to plan, conduct, evaluate, and report the results of clinical trials.

Dengue

NCID/DVBID staff obtained a $500,000 grant from the Rotary Foundation of Rotary International to help develop a DHF prevention and control program in Colombia.

NCID/DVBID staff presented the project initiated by Rotarians from the Rotary Club of Bucaramanga to the PAHO and Colombian Ministry of Health. Staff provided laboratory diagnostic reagents, consultation on laboratory diagnosis of dengue, and diagnostic services and reference services for suspected cases of dengue.

Influenza

NCID/DVRD assisted the Colombian Ministry of Health in the investigation of a large outbreak of influenza A(H3N2) in Bogota, Barranquilla, and Ibaque. In addition, the IB provided training and advice for setting up a national laboratory based sentinel surveillance program for influenza.

Malaria

NCID/DPD staff participated in a malaria therapy efficacy trial of chloroquine and sulfadoxine/ pyrimethamine in Quibdo, Colombia, as part of an ongoing WHO Linkage Grant with a private biomedical research organization. Additionally, NCID/DPD staff participated in a malaria symposium during a tropical medicine conference.

Oral Health

NCCDPHP/DOH provided assistance to the WHO Collaborating Center in San Antonio (UTHSCA) in the standardization of dental examiners for a national oral health survey in Colombia.

Syphilis

NCID/DASTLR staff evaluated one lot of RPR and one lot of Unheated Serum Reagin (USR) from Instituto Nacional de Salud in Bogota. Both lots met CDC criteria of acceptability. Staff members also evaluated one lot of venereal disease research laboratory (VDRL) (slide test) from BioBacter in Sante Fe de Bogota, which also met CDC specifications for non treponemal tests.

Vector Research

NCID/DPD staff are collaborating with colleagues at the Universidad de Antioquia in Medellin in vector research and are supervising the research of doctoral candidates in their Ciencias Basicas Biomedicas program.

COSTA RICA

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services and training to a visiting scientist on laboratory diagnosis of VEE.

Cardiovascular Disease: Cholesterol and Related Lipids

SAB is collaborating with the Pan American Health Organization (PAHO) to develop a model system in the Latin American and Caribbean Countries to produce valid lipid measurements necessary for developing and implementing cardiovascular disease prevention programs. CARMEN is a project developed and conducted by PAHO to set the policies and implement the required interventions to reduce the prevalence of risk factors associated with noncommunicable diseases, such as heart disease, and thus control and prevent morbidity and mortality from these diseases. A NCCDPHP scientist visited San Jose, Costa Rica to evaluate potential laboratories

for participation in the program. Recommendations were made to PAHO regarding selection of a laboratory.

Dengue

NCID/DVBID staff provided laboratory diagnostic services reagents, and reference services for suspected cases of dengue.

Hantavirus

NCID/DVRD provided diagnostic immunohistochemical testing and pathology consultation for dengue hemorrhagic fever, leptospirosis, and unknown hemorrhagic fever cases.

Leptospirosis

NCID/DBMD worked in collaboration with the Costa Rican Ministry of Health and the Illinois State Department of Health to provide epidemiologic and laboratory support for investigation of a leptospirosis outbreak among U.S. citizens infected while white water rafting in Costa Rica. This investigation brought leptospirosis to the attention of the Costa Rican Ministry of Health as a potential public health problem affecting domestic populations and visitors to Costa Rica. Staff are working on the development of follow-up studies to further assess the burden of leptospirosis in Costa Rica and the risk to U.S. travelers.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Costa Rica' s neonatal screening laboratory located in Cartago. Data analyses were performed and reports were developed for this laboratory

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Costa Rica' s neonatal screening laboratory located in Cartago. Data analyses were performed and reports were developed for this laboratory

CUBA

Dengue

NCID/DVBID provided diagnostic reagents and/or reference services.

Meningitis

NCID/DBMD continued collaboration with Finlay Institute, Havana, Cuba, to evaluate the outer membrane protein-based serogroup B meningococcal vaccine they have developed in Argentina, Iceland, and Chile. Manuscripts describing the vaccine evaluations in Iceland and Chile have been accepted for publication, and submitted for consideration, respectively. These studies represent the state-of-the-art information about serogroup B vaccine and form the basis for decisions being made concerning their use for control of epidemic serogroup B disease (e.g., New Zealand).

CURACAO

Hemorrhagic Diseases

NCID/DVRD provided immunohistochemical testing and pathology consultation on an unknown hemorrhagic fever case.

Viral Pathogens

NCID/DVRD provided photomicrographs to the BBC of smallpox, influenza, herpes and human immunodeficiency virus for broadcast graphic images.

DOMINICAN REPUBLIC

Child Survival

A NCID/CSA epidemiologist attended WHO' s First Global Review and Coordination Meeting on IMCI and gave presentations on IMCI research priorities at CDC and on maintaining health worker performance through supervision after IMCI training.

Dengue

NCID/DVBID staff provided laboratory diagnostic services and reference services for suspected cases of dengue.

Haemophilus influenzae

NCID/DBMD in collaboration with the Ministry of Health evaluated carriage of *Haemophilus influenzae* type b among children and continued evaluation of the burden of invasive disease due

to *Haemophilus influenzae* type b. The Ministry of Health of Dominican Republic will use information regarding the burden of disease to determine recommendations for use of conjugate vaccines for *Haemophilus influenzae* type b.

ECUADOR

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services and training to a visiting scientist on laboratory diagnosis of VEE.

Cysticercosis

NCID/DPD staff continued to collaborate with the Ecuadorean Academy of Neurosciences and Federal Ministry of Health in the development of control programs for neurocysticercosis and geohelminths.

Metal Exposure

In June, 1997, a NIOSH/DPSE scientist traveled to Quito, Ecuador, to attend the fifth biannual Latin American Congress on Occupational Health. He gave two presentations at the conference. One talk related to the development of a field-portable method for the determination of lead in industrial hygiene samples. The other talk focused on NIOSH international activities, emphasizing interactions with Latin America. Representatives from Latin American occupational health organizations of several countries expressed an interest in direct interaction with NIOSH.

Onchocerciasis

NCID/DPD collaborated in a field study designed to define seasonality of *Onchocerca volvulus* in the Rio Cayapas region where onchocerciasis is endemic. This work is funded by the Onchocerciasis Elimination Program for the Americas (OEPA).

Yellow Fever

NCID/DVBID provided diagnostic reagents and/or reference services.

NCID/DVRD provided immunohistochemical diagnostic testing and pathology consults on an outbreak of yellow fever.

EL SALVADOR

Reproductive Health Surveys

NCCDPHP/DRH provided technical assistance to the Asociacion Demografia Salvadorena on the Reproductive Health Survey questionnaire content, sample design, and first stage selection of the sample. The Reproductive Health Survey will be conducted in El Salvador in 1998.

Violence

A NCIPC violence researcher traveled to San Salvador, El Salvador in May, 1997 to consult with officials from El Salvador, the Pan American Health Organization, and the Swiss Authority for International Development. The purpose of the meetings was to delineate the problem of youth violence in the Americas, to identify risk factors and intervention strategies, and to make specific recommendations for management of the problem.

GRENADA

Dengue

NCID/DVBID staff provided consultation to health officials on future dengue prevention and control projects. They provided advice and consultations on developing a research program at St. Georges University Medical School and provided training to two visiting scientists on the laboratory diagnosis of dengue.

GUATEMALA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

NCID/DPD is working with the Guatemalan Ministry of Health to develop and implement a program to control the transmission of Chagas' disease. The program will be based on interventions designed to eliminate the vector of Chagas' disease. A study is in progress near Olopa that encompasses surveys and education as well as entomologic and serologic evaluation of a Ministry of Health initiative to control transmission by reducing vector density in domiciliary and peridomiciliary areas using the insecticide delatmethrin.

NCID/DPD staff initiated laboratory studies aimed at predicting the field efficacy of the VSI (vector-symbiont-intervention) approach to controlling Chagas' disease and met with representatives from the Guatemala Ministry of Health and officials from the Universidad del Valle de Guatemala to discuss the potential benefits of this approach. Work is also in progress, funded by the WHO, to study population biology and genetics of triatomine vectors of Chagas' disease.

Cholera

NCID/DBMD staff published a case-control investigation of cholera in Guatemala City, Guatemala, identifying street vended foods as the primary source, and illustrating the spread of a second recently introduced strain of *V. cholerae* O1.

Staff conducted a water vessel/hand washing intervention among street vendors in Guatemala City, demonstrating that the vendors using the intervention had significantly less contaminated stored water and beverages.

Cyclosporiasis

NCID/DPD, through its field station in Guatemala, has developed a surveillance system for cases of *Cyclospora* infection. Further, DPD and the Food and Drug Administration (FDA) are monitoring water quality and sanitation on raspberry farms and are providing technical assistance to help farmers comply with the control program.

Intestinal helminths

NCID/DPD staff developed protocols for case-control studies to determine the relationship between hookworm infection and anemia. The continued to assist the Medical Entomology Research and Training Unit/Guatemala (MERTU/G)'s laboratory to improve methods and quality control.

Leishmaniasis

NCID/DPD staff at the Division's field station in Guatemala, MERTU/G, has developed an integrated leishmaniasis program consisting of research on the epidemiology, parasitology, and treatment of cutaneous leishmaniasis. Staff have shown through several clinical trials that the traditionally recommended total treatment dose of antimony-containing medication can be decreased by half or more, thereby reducing adverse effects and cost without diminishing efficacy. Although typical approaches to control, such as vector elimination, are not feasible in Guatemala, staff have shown that morbidity can be reduced by improving the capacity at the local level to detect, diagnose, and treat infections.

Malaria

NCID/DPD, through its field station, MERTU/G, have conducted a wide range of malaria research, including studies of insecticide resistance, identification of new anopheline vector species, effect of impregnated bed nets on the dynamics of malaria transmission, and innovative approaches to community participation in malaria control. Proposals have been written to investigate insecticide-impregnated curtains, improve case management, and evaluate and strengthen diagnostic capabilities.

Mycotic Diseases

NCID/DBMD provided aspergillosis reagents for tests to confirm aspergillosis infections.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism screening tests to Guatemala' s two neonatal screening laboratories located in Ciudad and Guatemala City. Data analyses were performed and reports were developed for this laboratory.

Onchocerciasis

NCID/DPD, through its field station, MERTU/G, continues to assist the Guatemalan Ministry of Health in a major onchocerciasis control project based on distribution of ivermectin to disease-endemic communities. A broad operational research program is designed to develop and evaluate methods for monitoring program impact, improve record-keeping, decrease costs, and improve community participation.

NCID/DPD continued to explore the use of geographic information systems and other global positioning technology within the framework of an active onchocerciasis control program, and studies of "putative immunity" from 1,032 residents have been adopted by the Edna McConnell Clark Task Force in Immunology of Onchocerciasis.

Vector Research

NCID/DPD staff conducted with collaborators a WHO sponsored course on molecular approaches to genetic fingerprinting, population genetics, taxonomy and systematics of vectors. The course was held at the Universidad del Valle de Guatemala with participants from several different biomedical research organizations in Central and South America.

GUYANA

STDs

NCID/DASTLR staff, in cooperation with the Guyanan Ministry of Health, Guyana Responsible Parenthood Association, CAREC, and GTZ, initiated a study to a) determine the prevalence of gonococcal and chlamydial infections in symptomatic STD clinic attendees with genital discharges and asymptomatic family planning clinic attendees by using a highly sensitive and specific DNA-based technique; and b) assess the predictive performance of syndromic diagnostic algorithms for gonococcal and chlamydial infections in these populations.

Syphilis

NCID/DASTLR staff in cooperation with the Guyanan Ministry of Health, Caribbean Epidemiology Center (CAREC), and German Agency for Technical Assistance (GTZ) initiated a pilot study to evaluate the performance of a rapid screening method for the detection of syphilis infection in antenatal and STD clinic attendees by using a novel finger-stick method to obtain blood for RPR card testing performed by nonlaboratory health workers at the clinic site to facilitate the identification and same-day treatment of syphilis-reactive patients. Other objectives included a) identifying problems in training personnel, processing and reading test results; b) assessing the clarity and completeness of written instructions and the impact of the new methodology on routine clinic operations; c) assessing the problems in supply logistics in Guyana; and d) determining the seroprevalence of syphilis in the population of antenatal care and STD clinic attendees screened.

HAITI

Cyclospora

NCID/DPD staff initiated a broad study of *Cyclospora* infection in selected communities to address key issues related to prevalence, seasonality, transmission, symptomatology, role of animal reservoirs, and to serve as a source of organisms for laboratory-based studies.

Intestinal Helminths

NCID/DPD staff continued studies of the health impact of a broad spectrum anti-helminthic treatment program in school-age children.

Lymphatic Filariasis

NCID/DPD continued a collaborative longitudinal study on a mother/child cohort group to assess the clinical and immunologic responses following exposure to and acquisition of infection.
NCID/DPD continued a study to evaluate community-based mass treatment with combined single-dose diethylcarbamazine and ivermectin and to assess the impact on human and mosquito infection rates.

NCID/DPD continued a study to evaluate the feasibility and effectiveness of treatment for filaria-associated elephantiasis.

NCID/DPD initiated a community-based program to evaluate the impact of salt fortified with iodine and with diethylcarbamazine for control of iodine deficiency and lymphatic filariasis. An interdisciplinary team is developing and evaluating appropriate educational materials, performing a salt situation analysis to evaluate patterns of salt production and distribution, and determining the feasibility of expanding this program to the national level.

NCID/DPD initiated collaborative efforts designed to evaluate the country-wide prevalence of lymphatic filariasis, intestinal helminths and iodine deficiency through rapid epidemiologic assessments.

NCID/DVRD collaborated with NCID/DPD and local health departments in therapeutic evaluation of elephantiasis produced by filarial infection.

Malaria

NCID/DPD staff conducted formative research to characterize the appropriateness and acceptability of a proposed trial of insecticide-treated window and door curtains in rural Haiti. The findings indicate that curtains are widely used in Haitian homes for privacy, protection, and decoration and that there was broad support for an insecticide-treated curtain program.

HONDURAS

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services and training to a visiting scientist on laboratory diagnosis of VEE.

Dengue

NCID/DVBID staff participated with scientists at the University of Miami in preparation of an NIH grant.

Nutrition Surveys

NCCDPHP/DNPA analyzed nutritional assessment data from four surveys conducted over the past decade and documented trends, differentials and regional patterns of chronic malnutrition. DNPA advised USAID on monitoring efforts for nutritional, health, and mortality outcomes.

Reproductive Health Surveys

NCCDPHP/DRH participated in the data analysis, report-writing and editing of reports on the Reproductive Health Survey and the Male Health Survey conducted in Honduras in 1996, and in discussions of the report content and format with officials of USAID, the Ministry of Health, and Honduran Family Planning Association in Honduras.

JAMAICA

Dengue

NCID/DVBID staff provided training to visiting scientists on the laboratory diagnosis of dengue, and provided diagnostic reagents and/or reference services.

Genital Ulcer Disease (GUD)

NCID/DASTLR is collaborating with the University of North Carolina, Yale University, and the Jamaican Ministry of Health on a study of the etiology of GUD in Jamaica.

Micronutrient Malnutrition

NCEH scientists provided support for study design and analysis of fat-soluble vitamins at the Caribbean Food and Nutrition Institute of the University of the West Indies.

Reproductive Health Surveys

NCCDPHP/DRH provided programming, on-site staff training, and data entry hardware and software support for reproductive health survey questionnaires.

MARTINIQUE

Dengue

NCID/DVBID staff provided laboratory diagnostic reagents, and diagnostic services and reference services for suspected cases of dengue.

MEXICO

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services and training to two visiting scientists on laboratory diagnosis of VEE.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Instituto Nacional de Cardiologia - Ignacio Chavez. Tlalpan, Mexico City

Dengue

NCID/DVBID provided consultation to health officials about research on *Aedes aegypti* and dengue on the U.S.-Mexican border near Reynosa, Mexico. They provided laboratory diagnostic reagents, and diagnostic services and reference services for suspected cases of dengue and collaborated with Mexico Ministry of Health staff to investigate epidemic dengue on the Mexico-Texas border. In collaboration with the National Institute of Epidemiologic Diagnostics and References, DVBID is assisting with the development of a local program to allow rapid diagnostic techniques for use in the field.

Researchers also participated in a review of a community-based project funded by the Rockefeller Foundation, provided training to four visiting scientists in laboratory diagnosis of dengue viruses, and provided laboratory diagnostic services and reference services for suspected cases of dengue.

Diarrheal Diseases

NCID/DVRD completed a longitudinal study of rotavirus and astrovirus gastroenteritis in Mexican children.

Diabetes

NCCDPHP/DDT' s Director spoke at the National Diabetes Week Conference co-sponsored by the Federación de Asociaciones Mexicanas de Diabetes and the Pan-American Health Organization in Mexico City.

Environmental Health

ATSDR staff participated in a workshop on the health effects of air pollution in Mexico City. The workshop was sponsored by the Institute of Public Health in Cuernavaca, Mexico.

Hantavirus

NCID/DVRD collaborated with New Mexico State University to establish a health education intervention in the US Mexico Border Region for the prevention on Hantavirus Pulmonary Syndrome.

NCID/DVRD provided pathology consultation and immunohistochemical testing on isolated cases of dengue hemorrhagic fever and hantavirus pulmonary syndrome.

Health Information Systems–Vital Statistics

NCHS continued its collaboration with the El Paso Field Office of the Pan American Health Organization (PAHO) and the Ministry of Health of Mexico on preparation of reports on vital and health data for the border region. The first report, *Sister Communities Health Profiles, 1989-91*, was published by the PAHO in 1994. Work is underway to update the sourcebook with information for the years 1992-94. The update will provide a more detailed analysis of local area statistics on both sides of the border.

Helicobacter pylori

NCID/DVRD continued collaboration with Stanford University, the National Cancer Institute in Mexico and ECOSUR in Chiapas by providing pathology consultation and immunohistochemical testing for a study of *Helicobacter pylori* and preneoplastic gastric lesions.

HIV

NCID/DASTLR staff is hosting a Guest Researcher from the Instituto Mexicano Del Seguro Social who is training in molecular biology laboratory methods through participation in studies of novel nonculture-based methods for determining HIV antiviral drug resistance.

Human Papillomavirus

NCID/DVRD staff participated in the Binational Cervical Cancer Working Group meeting to evaluate an ongoing US-Mexico project, "Prevalence of Cervical Cancer and Infections Caused by *Chlamydia* and Human Papillomavirus (HPV) in Women Residing on the US-Mexico Border," and to determine a possible collaborative role in future investigations of cervical cancer among border populations. Collaborators on the current project include the University of Arizona, the Arizona Department of Health, the State of Sonora Public Health Department, and the College of Sonora. VEHB has been invited to continue collaborations with the Binational Cervical Cancer Working Group Working Group and will explore the possibilities of extramural research to link HPV testing with cervical cancer screening.

Laboratory Training

In January, 1997 a United States/Mexico Border Tuberculosis Laboratory Planning meeting was held in El Paso, Texas to focus on an action plan for issues of cooperation, collaboration, and infrastructure building for laboratory support of tuberculosis control. This meeting was co-sponsored by the Centers for Disease Control (CDC), the Association of State and Territorial Public Health Laboratory directors (ASTPHLD), and the Instituto Nacional de Diagnostico y Referencia Epidemiologicos (INDRE) with attendance from representatives of the 4 U.S. and 6 Mexican border state laboratories, the Pan American Health Organization, and Ten Against TB (TATB). The meeting participants formulated an action plan for future collaborative efforts between the U.S. and Mexican laboratories at the state and national level. Highlights of this action plan include proposals for: 1) collaborative training efforts that focus on microscopy and culture isolation of *M. tuberculosis*; 2) initiatives to identify equipment needed to increase testing capacity in the Mexican state laboratories; and 3) the need to form a consortium of the

U.S./Mexico Border state laboratories to increase communication on tuberculosis and other public health issues.

Metal Exposure (Lead)

NCEH provided an in-depth training workshop at the International Lead Meeting, for blood lead specimen collection, safety, lot testing, sample processing, overall QA/QC, and data reporting.

In February, 1997, a NIOSH/DPSE scientist traveled to Mexico City to assist the Mexican office of the Panamerican Health Organization (PAHO) in demonstrating field analytical methods for lead. He presented a seminar entitled "Portable Anodic Stripping Voltammetry for Lead Analysis" in Spanish five times during the trip. This technology was demonstrated at six sites in Mexico. Officials from several Mexican health and environmental organizations expressed an interest in obtaining the technology and a desire to collaborate in future investigations.

Mine Studies

On behalf of the Mexican Institute for Social Security (IMSS), a NIOSH researcher participated in a control technology workshop on health and safety issues in underground coal mines. The IMSS is responsible for recommending health and safety standards for Mexican mines and for providing technical support to the mining industry on issues related to health and safety. In addition, a simultaneous two-day course on the epidemiological aspects of coal mine health and safety was held for the medical staff of the IMSS who interact with coal miners on a regular basis. It also appears that there will be significant medical screening in Mexico in the areas of coal miner pneumoconiosis and hearing loss.

Mycotic Diseases

NCID/DBMD collaborated with the Mexican Ministry of Health and Washington State Health Department in an investigation of a coccidioidomycosis outbreak that occurred among Seattle, WA residents who traveled to Tecate, Mexico. This was an important investigation to remind local and national health providers about the possibility of coccidioidomycosis in travelers to endemic areas.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, galactosemia, and congenital adrenal hyperplasia screening tests to Mexico's four neonatal screening laboratories located in Ail-Piso, Colonia Insurgenties Cuicuilco, Col Roma, and Coahuila. Data analyses were performed and reports were developed for these laboratories.

Nosocomial Infections

NCID/HIP made two presentations ("Dialysis-Associated Diseases" and "Disinfection, Sterilization, and Antisepsis in a Hospital Setting") at the Third International Symposium on Nosocomial Infections, Monterrey, Nuevo Leon, Mexico, July 3-5, 1997.

Occupational Exposure

A NIOSH/DPSE staff member presented an invited paper entitled "Validation of Sampling and Analytical Methods" at the Secondo Congreso Nacional de Hygiene Industrial on September 24 in Mexico City. There is particular interest in the validation of sampling and analytical methods since the Mexican government is in the process of putting new laws into place for occupational safety and health. As part of this process, they have adopted many chemical standards and are including sampling and analytical methods in the legislation. For several compounds, revised NIOSH methods have already been written into these standards (e.g., lead, vinyl chloride).

Occupational Hazards

At the request of the Instituto Mexicano Del Seguro Social and the Pan American Health Organization, the National Institute for Occupational Safety and Health (NIOSH) was invited to send a representative to participate in the study of the forest factories located in and around the state of Durango. One of the primary purposes of the trip was to conduct site visits to a number of logging camps and logging factories and provide suggestions for improving worker safety and health.

Occupational Health

A NIOSH occupational physician/medical epidemiologist continues to be assigned full-time to PAHO (now at the Regional Representation Office in Mexico City). The purpose of the assignment remains to develop and expand intensive occupational and environmental health training programs, focusing on general occupational medicine and epidemiology, surveillance, and workplace investigations. Areas of particular emphasis during the past year have included pesticide exposures, lead poisoning, and training programs conducted in the US-Mexico Border region. The ultimate objective of this effort is capacity development to improve capabilities to address these issues in Mexico and to develop approaches that can be applied elsewhere in Latin America.

NIOSH/DSHEFS. As part of the NIOSH assistance to PAHO in Mexico, a senior industrial hygienist was assigned to Mexico for two months (February 1 – April 6, 1997) to assess the industrial hygiene capabilities, teach industrial hygiene courses, and help develop proposals for future collaborations. He accompanied inspectors from the Mexican Society Security Institute (IMSS) and the Secretary of Environmental Health during 10 inspections of private enterprises to

assess field methods. In collaboration with IMSS, he developed and presented a 40-hour basic industrial hygiene course for government inspectors. To demonstrate protocols and equipment for industrial hygiene field studies, he jointly conducted two field evaluations with Mexican investigators.

Plague

NCID/DVBID staff tested samples and identified fleas from suspect plague epizootic in northern Mexico.

Rabies

NCID/DVRD provided assistance to the Texas Technical University to conduct a bat survey in the Michoacan project and conducted a rabies diagnostic training course with discussions on safety issues for biologists collecting bats in the field.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

Tobacco Control

NCCDPHP/OSH continued to collaborate with Mexico as part of the United States-Mexico Binational Commission. The Smoking Prevention Core Group, co-chaired by the OSH Director, continued to explore collaborative activities to address public and professional education, research and evaluation, policy analysis and coordination, and increased bilateral coordination of tobacco research, prevention, and control activities in the United States and Mexico.

Toxicants (Organic)

NCEH staff have designed studies to help define human exposure to a variety of environmental toxicants along both sides of the U.S.-Mexican border.
NCEH also collaborated with the Pan American Health Organization and the Mexican Public Health Agency to investigate exposure of gas station attendants and office
workers in Mexico City to volatile organic compounds, including methyl tert-butyl ether. Many of these compounds come from automobile exhaust and are contributors to the significant air pollution problem in Mexico City. Office workers were exposed to elevated levels of gasoline components.

Tuberculosis

DTBE is also very involved in the National Drug Resistance Surveillance Program in Mexico. Mexico is estimated to have 40,000 new cases of TB each year; an unknown percentage of these cases are caused by *Mycobacterium tuberculosis* (MTB) resistant to multiple drugs. The Mexican government has requested assistance from the CDC in the implementation of an initial

survey and the development of an ongoing national surveillance system. The survey has three objectives: 1) to obtain a population-based sample of isolates from various Mexican states 2) to determine drug susceptibility patterns, and 3) to use the survey as the foundation for establishment of an ongoing surveillance system for drug resistance.

Accomplishments to date include: 1) completion of the development and implementation of the protocol in three states 2) the training of over 500 key health care personnel (from the major health institutions) in three states 3) improvement of bi-national cooperation in TB control on a national and state level 4) collection of data from 3 states 5) and presentation of preliminary data at Mexico's national infectious disease meeting. Results are currently being prepared for publication in the MMWR.

The overall purpose of this project is to direct resources to areas of need and to develop effective channels of communication and cooperative working relationships among health professionals managing tuberculosis control and prevention programs on both sides of the Texas-Mexico border. Resources are being utilized for diagnostic services, outreach services for directly observed therapy and contact investigations, treatment for tuberculosis cases and contacts, education and training for health professionals, the development of materials for educating the public and providing them with information about tuberculosis, and other public awareness activities.

NICARAGUA

Data for Decision Making

EPO conducted a DDM (Data for Decision Making) program assessment visit to Nicaragua in July, 1997. These programs seek to address critical infrastructure development through training of applied epidemiology and management skills. They concentrate on helping central level staff build capacity of state and jurisdictional decision makers to use data for planning, implementing, and evaluating public health programs and for allocating resources in a decentralized environment.

Dengue

NCID/DVBID staff provided laboratory diagnostic services and reference services for suspected cases of dengue. NCID/DVBID staff also helped investigate a suspected epidemic of dengue hemorrhagic fever which was ultimately determined to be leptospirosis.

PANAMA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

NCID/DVBID provided training to a visiting scientist on laboratory diagnosis of VEE and provided diagnostic reagents.

Dengue

NCID/DVBID staff provided consultation following the isolation of DEN-3 in the country and provided laboratory diagnostic services and reference services for suspected cases of dengue.

PARAGUAY

Dengue

NCID/DVBID staff provided laboratory training to personnel at the National Public Health Laboratory in Asunción on dengue diagnostic techniques and also provided consultation and advice to health officials on surveillance and control methods.

Hantavirus

NCID/DVRD provided reference diagnostic hantavirus testing as a follow up on epidemiologic investigation conducted in 1995 and provided reference diagnostic hantavirus testing.

PERU

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services and established a collaborative study on emerging infectious viral diseases in the Amazon region.

Cholera

NCID/DBMD published a manuscript on a knowledge, attitudes, and practices (KAP) study done in June 1991, in Iquitos, Peru. This study showed that a cholera education campaign improved knowledge and attitudes, but had little effect on practices of villagers in the Amazon region of Peru. DBMD also published a manuscript on a KAP study done in February 1993, in Trujillo, Peru. This study showed that people were unable to sustain boiling water as an intervention to prevent cholera, that many had tried chlorine tablets, and didn' t like the taste, and that some other intervention was necessary to make the water safe to drink.

Cysticercosis

NCID/DPD, in collaboration with the Departamento de Microbiologica, Universidad Peruana Cayetano Heredia, Instituto de Medicina Tropical de San Martin, Johns Hopkins University, and the Instituto de Ciencias Neurologicas in Lima, is developing control strategies for human and pig cysticercosis. Scientific exchange of knowledge and reagents for the serodiagnosis of cysticercosis is continuing.

Dengue

NCID/DVBID staff provided consultation to health officials as part of an evaluation of the national dengue surveillance, prevention and control program with special emphasis on laboratory diagnosis and epidemiology. They provided training to a visiting scientist on the laboratory diagnosis of dengue and provided laboratory diagnostic services and reference services for suspected cases of dengue.

Hantavirus

NCID/DVRD provided reagents for HPS diagnostic support to laboratories. USAID sponsored researchers from Lima to come to SPB for training in the latest diagnostic techniques. Three scientist from SPB were also sent to the laboratories in Lima to train additional staff.

Hepatitis

NCID/DVRD consulted for USAID and the Peru Ministry of Health on the epidemiology of hepatitis B and hepatitis B vaccination activities in Peru.

Laboratory Investigations

NCID/DVRD collaborated with the Ministry of Health to conduct laboratory investigations of multiple human deaths that occurred in an area with reports of humans bitten by vampire bats in Amazonia.

Malaria

NCID/CDC staff, in collaboration with USAID, evaluated the malaria control program in the Loreto region of Peru. This evaluation addressed both epidemiologic and entomologic aspects of malaria transmission. A proposal for long-term technical assistance is being developed in collaboration with USAID and the Ministry of Health.

Mycotic Diseases

NCID/DBMD collaborated with the Peruvian Ministry of Health and NIH to better understand the epidemiology of sporotrichosis in a highly endemic area of Peru. This may be a useful site to evaluate possible preventive measures and new antifungal drugs for treatment of sporotrichosis.

Occupational Health

NIOSH/DSHEFS. A senior NIOSH industrial hygienist assisted PAHO by developing and presenting industrial hygiene courses to master' s students in the two primary public universities in Peru during the time period September 21– October 5, 1996. He presented a 20-hour general course in industrial hygiene and safety to environmental engineering graduate students at the National University of Engineering, Lima, and a 32-hour course on the same subjects to students in the occupational medicine program of the University of San Marcos School of Medicine, Lima.

Oral Health

NCCDPHP/DOH provided instruction on statistical methods to graduate students at the Master and Doctoral level and reviewed dissertation protocols.

Plague

NCID/DVBID provided diagnostic and reference services for suspected plague.

Reproductive Health Surveys

At the Request of USAID/Peru, NCCDPHP/DRH reviewed results of the 1991 and 1996 Peru Demographic and Health Surveys and prepared a report to advise on whether the 1991 data should be reweighted in order to give results comparable to those obtained in the 1996 survey.

Yellow Fever

NCID/DVBID staff provided diagnostic assistance and/or reference services for suspected yellow fever.

TRINIDAD

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff provided laboratory diagnostic reagents, and diagnostic services and reference services for suspected cases of dengue. They also provided training to a visiting scientist on the laboratory diagnosis of dengue.

Environmental Health

NCEH conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

Leptospirosis

NCID/DVRD performed immunohistochemical diagnostic testing and provided consultation on isolated cases of leptospirosis in Trinidad.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Toxoplasmosis

NCID/DVRD provided immunohistochemical diagnostic testing and pathology consultation on an outbreak of fatal toxoplasmosis occurring in a colony of monkeys in Trinidad.

Yellow Fever

NCID/DVBID staff collaborated with NIP and the Trinidad MOH in surveillance of central nervous system adverse events due to yellow fever vaccine in 1-2 year old children.

URUGUAY

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Uruguay' s neonatal screening laboratory located in Montevideo.

VENEZUELA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services and provided training to a visiting scientist on laboratory diagnosis of VEE.

Dengue

NCID/DVBID staff provided advice, consultation and training to two visiting scientists on dengue diagnostic techniques, participated in a PAHO review of the national surveillance and control program, provided advice and consultation on developing laboratory-based surveillance for DEN/DHF and on developing a national plan for prevention and control of DHF. They also provided diagnostic assistance and/or reference services.

Mycotic Diseases

NCID/DBMD hosted a scientist from the Instituto Investigaciones Veterinarias, Maracay as a guest researcher for one year and developed molecular probes for 5 medically important *Aspergillus* species in the Molecular Immunology Laboratory. This research was presented at the annual meeting of the American Society for Microbiology. These probes will be applied to detect aspergillosis using bronchoalveolar lavage fluids obtained from AIDS patients with pneumonia.

Physical Fitness

NCCDHP/DNPA delivered a keynote speech entitled, "General Overview of the Surgeon General' s Report and Concluding Strategies to Increase Physical Activity," at the International Seminar on Physical Activity and Health.

Venezuelan Hemorrhagic Fever

NCID/DVRD, in collaboration with Yale University, the University of Texas Medical Campus (UTMC) at Galveston, and the Ministry of Health, Venezuela, conducted studies on the natural history/pathogenesis of Guanarito virus (Venezuelan Hemorrhagic Fever) in *Zygodontomys brevicauda*. Laboratory studies have provided additional data which strongly suggest that this rodent species is persistently infected with Guanarito virus and that this species represents the primary rodent vector of this virus. Staff continued this investigation with UTMC at Galveston.

NCID/DVRD met with personnel from the Universidad Nacional Experimental de los Llanos Occidentales in Guanare, Venezuela to advise and collaborate on analysis of data collected during long-term mark-recapture studies of the reservoir of Guanarito virus and participated as committee member for graduate student defense of work on Guanarito virus.

NCID/DVRD also met with personnel of the Ministry of Health (State of Portuguesa) to advise and assist with setting up a database and conducting analysis of clinical and epidemiological data for the human cases of Venezuelan hemorrhagic fever since 1989.

Yellow Fever

NCID/DVBID staff provided diagnostic assistance and/or reference services for suspected yellow fever.

Asia and the Pacific

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AUSTRALIA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Division of Clinical Chemistry -Institute of Medical & Veterinary Science, Adelaide.

Flinders Medical Centre Lipid Laboratory, Bedford Park.

Royal Prince Alfred Hospital Department of Clinical Biochemistry, Sydney.

Dengue

NCID/DVBID staff continued to provide consultation and advice on developing a program for surveillance, prevention and control of dengue in northern Queensland.

NCID/DVBID staff helped obtain funding from Rotary International to develop and implement a school-based education program on dengue prevention and control in northern Queensland.

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Equine Morbilli Virus

NCID/DVRD provided consultation on the design and operation of new Biosafety Level-4 laboratory and provided consultation on equine morbillivirus.

Malaria

NCID/DVBID staff continued collaborative work to develop DNA probes to identify the members of the *Anopheles punctulatus* complex.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Mine Studies

NIOSH/PRL participated in the Annual Queensland Mining Industry Health and Safety Conference sponsored by the Queensland Mining Council. The Australians are using tripartite teams (representing labor, industry and government) to develop and recommend safety and health standards. The teams appear to have substantial power and their recommendations are implemented as voluntary standards. These voluntary standards are replacing the mandated standards as the Australians believe that the traditional approach of governmental regulation is not effective.

The Australians noted that their research program is primarily funded by private industry and that short term issues are the major focus. It was indicated that the Australians will look toward the United States for long-range occupational health and safety research.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, galactosemia, and congenital adrenal hyperplasia screening tests to Australia's six neonatal screening laboratories located in Herston Q, Wentworthville, Parkvile, Halifax, North Adelaide, and Ste-Foy. Data analyses were performed and reports were developed for these laboratories.

NCEH conducted performance evaluations for HIV antibody testing on dried-blood-spots in Randwick/New South Wales and Fairfield/Victoria. Quality control material have been validated and distributed to assist in determination of seroprevalence among child-bearing women.

Physical Fitness

NCCDPHP/DNPA provided consultation to the Minsters of Health regarding physical activity and health, presented information about the Surgeon General' s Report on Physical Activity and Health, and disseminated key messages from this report.

Protothecosis

NCID/DVRD provided pathology consultation on a case of protothecosis.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases and collaborated with the Australian Animal Health Laboratory on investigations of a new Lyssavirus.

BANGLADESH

Cholera

NCID/DBMD helped design and teach a "train the trainers" course at the International Centre for Diarrheal Diseases Research, Bangladesh (ICDDR, B). The course will prepare their staff to instruct representatives from various health related NGO's in proper prevention and management of epidemic cholera in refugee populations and in the setting of natural disasters or wars.

Diarrheal Diseases

NCID/DBMD sent videotapes, slides and written material to the ICDDR, B at their request for use in updating training materials.

NCID/DVRD has developed collaborative studies to look at astrovirus disease and efficacy of rotavirus vaccines.

Emergency Preparedness

NCEH staff assisted with the environmental health portion of a course entitled, "Workshop on Emergency Response to Cholera and Shigella Epidemics," and helped ICDDR, B to institutionalize their ability to teach the environmental health component of the workshop. Because of shortcomings in many aspects of the NGO community's response to a cholera epidemic, OFDA/USAID and ICDDR,B agreed to host a course in Bangladesh for NGO medical officers and managers to develop the skills needed to respond appropriately to cholera and shigella outbreaks during complex emergencies and natural disasters.

The course was funded as a pilot and this second meeting was dramatically better than the first because of staff being more intent on making quality presentations, and because of the training of trainers program funded by USAID. There was positive give and take between the students and instructors which will add to future iterations of the course.

CAMBODIA

Arboviruses

NCID/DVBID staff provided advice and consultation on surveillance for Japanese encephalitis and provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff provided advice and consultation on surveillance for dengue hemorrhagic fever.

CHINA

Antimicrobial Resistance

NCID/HIP provided an instructor in a laboratory training course conducted by the Antimicrobial Resistance Monitoring Program of WHO, held in Shanghai.
NCID/DBMD developed a collaboration to assess the burden of antibiotic resistance among respiratory bacteria, and the potential role for *Haemophilus influenzae* vaccines.

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Avian Influenza

NCID/DVRD conducted an investigation of an influenza virus isolated in Hong Kong from a 3-year-old child who died from an acute respiratory illness. The virus was identified as influenza type A(H5N1), which was known to infect chickens, ducks, and other birds, but has not previously been isolated from humans. A thorough investigation was carried out, and surveillance was increased.

Cardiovascular Disease: Cholesterol and Related Lipids

Three NCEH scientists traveled to Beijing Hospital, Beijing, China and gave lectures and seminars and provided consultation on how to set up a lipid reference laboratory to serve as a reference center for lipid measurements in China. While in Beijing, the CDC scientists visited the LSP laboratory at Fu Wai Hospital and provided advice on specific problems they were having with lipid measurements.

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Cardiovascular Institute Fu Wai Hospital, Beijing
Guangdong Prov Cardiovascular Institute Clinical Cardiology Section, Guangzhou

Chlamydia

NCID/DASTLR staff provided reference cultures, oligonucleotide primers, and chlamydial DNA to the Beijing Infectious Diseases Hospital, Beijing Health Bureau.

Dengue

NCID/DVBID provided diagnostic reagents and reference service.

Echinococcosis

NCID/DPD staff continued to advise and perform collaborative research with the National Hydatid Disease Center, Xinjiang, in developing surveillance and control programs. A surveillance project in Tibet, funded by the Thrasher Fund, was initiated.

Epidemiology Training

PHPPO, NIP, EPO and Emory University's Rollins School of Public Health designed, developed, and implemented a five-week course, "Epidemiology: Polio and Measles Eradication/EPI Course" for 25 provincial medical epidemiologists from China in Atlanta, Georgia, August through September, 1997.

Hepatitis

NCID/DVRD conducted site visits to two private sector companies to determine their capabilities in producing diagnostic kits for the detection of important markers of hepatitis infection. It is expected that both companies will negotiate with CDC for licensing.

HIV/STDs

NCID/DASTLR staff hosted a visit by a delegation representing the Chinese Academy of Medical Sciences and the National Center for STD and Leprosy Control to discuss STD and AIDS control and to develop collaborative projects.

Influenza

NCID/DVRD works on an ongoing basis to expand and improve international influenza surveillance. In 1989, the Influenza Branch and the Institute of Virology, Beijing established surveillance sites for early detection of variant influenza strains emerging in China. Five influenza A(H3N2) viruses have been identified before they became epidemic in the U.S. by this system, and were used in the U.S. trivalent influenza vaccines. During 1997, Global EID funding was utilized to increase the number of influenza laboratory surveillance sites in China from ten to twelve.

NCID/DVRD provided short term laboratory surveillance training for two Chinese scientists from the two expansion sites. They also provided training for one scientist from the Institute of Virology, Beijing, and completed agreements to provide short term training for two additional Chinese scientists.

Japanese Encephalitis

NCID/DVBID staff collaborated on studies of JE SA14-14-2 vaccine efficacy and immunogenicity.

Meningitis

NCID/DBMD responded to a request from the Chinese Ministry of Health and the Pan American Health Organization to host a six-month training experience for a Chinese district-level epidemiologist. During his stay at CDC he has worked on development of a protocol to assess the population-based burden of bacterial meningitis. This effort is designed to help the Ministry to make data-based decisions about use of new conjugate *H. influenzae* vaccines and improved control of meningococcal disease.

Metal Exposure (Lead)

NCEH provided extensive consultation to Beijing Medical University, and other public health agencies of the PRC, for a number of different environmental health problems, including lead poisoning. Training, quality control support, and BLLRS enrollment were provided to initiate blood lead analysis for a pediatric lead poisoning study.

Micronutrient Malnutrition

NCEH collaborated with the National Cancer Institute in a study of nutritional risk factors for cancer among residents of Linxian province, a area known to have endemic Keshan' s disease (selenium deficiency). Nutritional status may modulate carcinogenesis, and some nutrients have important roles in chemoprevention. NCEH analyzed over 3000 samples for selenium and cholesterol content for this study.

Mycotic Diseases

A 2-year ASM/NCID post-doctoral fellowship was awarded to a Chinese scientist to improve diagnosis and understand the immunology and pathology of recurrent vulvovaginitis due to *Candida albicans* and related species. This research is scheduled for presentation at the annual meeting of the American Society for Microbiology and is applied to specimens obtained in collaboration with the Division of Reproductive Health.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism and phenylketonuria screening tests to China' s two neonatal screening laboratories located in Tianjin, and Harbin. Data analyses were made and reports were developed for these laboratories.

NCEH provided consultation, training, and analytical support to Beijing Medical University for the CDC/PRC Folate/Neural Tube Defect Study. A paper describing the bloodspot folate method developed for this project was published in AJCN 1997;66:1398-1405.

Neural Tube Defects

The Molecular Biology Branch of NCEH/EHLS is providing advice and consultation to Beijing Medical University (BMU) for studies to determine the contribution of genetic variants of two folate-metabolizing enzymes, namely methylenetetrahydrofolate reductase and methionine synthase, to the occurrence of NTD. Laboratory training in several laboratory techniques including DNA processing and genotyping was offered to Chinese scientists and a functional molecular laboratory was set up in BMU to perform the assays.

In 1993, CDC consulted with BMU staff on conducting and evaluating a community intervention program (CIP) of 0.4 mg folic acid for the prevention of neural tube defects (NTD). With the publication of the MRC randomized trial in LANCET in July 1991, distribution of the PHS recommendation for women in the U.S. in September 1992, and the subsequent publication of the positive Hungarian randomized trial in NEJM in December 1992, the original idea of conducting a placebo randomized clinical trial in China was no longer an option. In October 1993, the People's Republic of China, Ministry of Health published a Folic Acid Recommendation for reproductive-age women modeled after the U.S. PHS recommendation. The recommendation promotes the consumption of 0.4 mg folic acid for all newly married women of childbearing age who plan to marry in China.

The last 3 years' activities for the cooperative partnership in China included finalization of the original Chinese pilot study, ongoing CDC/BMU support for maintaining an excellent birth defects surveillance system to monitor birth defect rates including NTDs and a revised project protocol to continue NTD prevention efforts by conducting and evaluating the community intervention effort.

Major accomplishments include the implementation of Chinese Community Intervention Programs in 30 counties in Northern and Southern China. The Ministry of Health established a national program in October 1995. The birth defect surveillance system has established the means to determine baseline and ongoing neural tube defect rates for evaluation of the effectiveness of the CIP. 388,000 births have been monitored from 1992 through 1995 with over 6,000 cases of birth defects identified including 637 cases of NTDs. Since October 1993, more than 90 percent of women having a premarital exam started taking pills. Through September 1995, over 150,000 women have started taking pills, contributing over 700,000 person-months of information. Over 17,000,000 pills have been consumed and compliance, as measured by pill counts, exceeds 85 percent.

Physical Fitness

NCCDPHP' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in Bejing to provide a physical activity surveillance instrument, data collection, and data analysis.

Plague

NCID/DVBID continued collaborative work with scientists on plague surveillance, control and molecular epidemiology, and provided long-term training for two Chinese scientists.

Respiratory Viruses

NCID/DVRD provided long term training in non-influenza respiratory viruses to several visitors from China. NCID/DVRD also hosted a WHO Fellow from Bethune Medical University, Peoples Republic of China, for training in molecular characterization of respiratory syncytial virus and to facilitate future collaborations in China.

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases and consulted with national representatives in Wuhan and Beijing and representatives of 12 other Asian countries to develop guidelines for rabies prevention and control.

Schistosomiasis

NCID/DPD is collaborating with the Institute of Parasitic Diseases at the Chinese Academy of Preventive Medicine in a scientific exchange of knowledge and reagents for the diagnosis of *Schistosoma japonicum* infections.

School Health

NCCDPHP/DASH, WHO, and UNAIDS worked with officials in China' s Ministry of Health to initiate activities to improve health through schools. An HIV/AIDS/STD health education pilot project was planned for two provinces. Activities include: 1) development of education to prevent HIV/STD infection as an entry point for the development of Health Promoting Schools in twenty schools in two provinces in China, and 2) adaptation and implementation of a survey of high-school aged youth to assess knowledge, attitudes, and behaviors associated with HIV infection and other behaviors associated with important health problems. A modification of the U.S. Youth Risk Behavior Survey (YRBS) will be used to identify and monitor critical health behaviors among Chinese youth. The Director-General of China' s Ministry of Health and other

school health officials prepared a manuscript to describe their national strategies, approaches, and priorities for school health which is planned for publication in an international journal.

Silicosis

Visiting scientists from Tongji Medical University, Wuhan, PR China, visited NIOSH/HELD for several months and participated in NIOSH surface analyses of Chinese metal mine and pottery workplace dusts and in a review of extensive Chinese medical and work-history records of silicotics in tin and tungsten mines and pottery sheds. Those data indicate differing relationships of silicosis and lung cancer disease prevalence to cumulative total silica dust exposure between commodities. The Tongji-NIOSH research team is determining if a measure of the biologically-available surface of quartz particles provides a predictive index for mixed dust exposure disease risk. Analyses of Chinese dust samples is proceeding and a report on silicosis prevalence among tin miners is in preparation.

Surveillance

NCCDPHP/DACH continued their active role in the World Bank Project VII on noncommunicable and chronic diseases in China. DACH provided technical assistance to the Chinese Academy of Preventive Medicine (CAPM), Beijing, to conduct an ongoing BRFSS in eight cities in China. The cities are: Beijing, Chengdu, Kunming, Liuzhou, Luoyang, Shanghai, Tianjin, and Weihai. The health areas addressed by the surveillance system include: Health status, tobacco use, alcohol consumption, hypertension awareness, cholesterol awareness, exercise, diet, women' s health, injury, and STD/AIDS knowledge. Data will be collected by household interview for three weeks of every month through year 2000.

FLORES ISLANDS

Malaria control

NCID/DPD analyzed house wall samples of various sorts and composition to determine the quantity of the insecticide, etofenpox, present.

INDIA

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services.

Cysticercosis

NCID/DPD is collaborating with the Bombay Institute of Medical Sciences to define the impact of cysticercosis on neurologic diseases and to determine the sensitivity of the immunoblot assay for patients infected with a single cyst of *Taenia solium*. Expanded surveillance and research activities have been proposed for funding by the new U.S.-India Cooperative Research Agreement.

Dengue

NCID/DVBID staff provided advice and consultation to two visiting scientists on laboratory-based dengue surveillance, laboratory procedures, surveillance data analyses and preparation of reports, mosquito biology and control, and community-based programs. They also provided advice and consultation on laboratory diagnosis of dengue viruses during a large epidemic in 1996 and provided diagnostic reagents and/or reference services.

Diabetes

NCCDPHP/DDT developed primary care guidelines for diabetes management in India.

Hepatitis

NCID/DVRD withdrew from the VAP on transfer of technology for the domestic production of plasma-derived hepatitis B vaccine.

NCID/DVRD provided training to a visitor from the Sanjay Gandhi Institute of Medical Sciences in Lucknow, who worked on the detection and characterization of hepatitis E virus by PCR amplification and sequencing.

Leptospirosis

NCID/DVRD performed immuno histochemical diagnostic testing and provided consultation on isolated cases of leptospirosis.

Malaria

NCID/DPD, in collaboration with the National Institute of Immunology, New Delhi, continued ongoing research on the expression of malarial antigens in a baculovirus expression system. Studies are planned to develop a combination *Plasmodium falciparum* and *Plasmodium vivax* multi-component vaccine.

NCID/DPD has initiated a project with the Malaria Research Center, New Delhi, aimed at 1) collecting baseline data related to entomologic designing, and epidemiologic and sociologic measurements of malaria transmission required to quantitate morbidity and mortality attributable to malaria; 2) undertaking immunoepidemiologic and molecular-epidemiologic investigation of *Plasmodium falciparum* and *Plasmodium vivax* malaria required to determine the characteristics of naturally acquired immunity and the nature and extent of genetic diversity in natural parasite populations; and 3) carry out a field intervention related to novel molecular approaches and new tools to study the feasibility and control of malaria.

Mycotic Diseases

NCID/DBMD staff investigated the occurrence of *Cryptococcus neoformans* var. *gattii* in HIV (+) and HIV(-) patients and its environmental sources in India in collaboration with a physician from Chandigarh as co-investigator. NCID/DBMD staff also investigated the status of eumycotic mycetoma in southern India including new mycotic agents and their sensitivity to azole antifungal drugs.
NCID/DBMD investigated the incidence and distribution of human pythiosis in India.

Occupational Health

An Indian scientist from Bombay Hospital and Medical Center, Bombay, India visited NIOSH Morgantown and discussed studies on a group of urban residents to evaluate environmental and occupational influence on asthma. NIOSH Morgantown scientists and NIH scientists collaborated in these studies to evaluate blood sera samples for certain biomarkers. A NIOSH researcher visited Bombay, India in January 1998 to discuss the results of these studies and to discuss the scope of lead monitoring in women and children exposed in urban areas and occupational settings.

Plague

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Tuberculosis

NCID/DASTLR provided training to Indian scientists in the areas of laboratory safety and high performance liquid chromatography (HPLC) identification of mycobacteria.

INDONESIA

Arboviruses

NCID/DVBID staff provided advice and consultation on surveillance for Japanese encephalitis and provided diagnostic reagents and/or reference services.

Chlamydia and Gonorrhea

NCID/DASTLR staff continued a collaborative study with NCHSTP/DSTDP, the Indonesian Ministry of Health in Jakarta, and USAID/Indonesia to a) determine the prevalence of gonococcal and chlamydia infections in commercial sex workers in three sites, Jakarta, Surabaya, and Manado; and b) to monitor the gonorrhea susceptibility to commonly used

antibiotics as a guide to accurate and adequate treatment. The study is planned to take place in two sites, Surabaya and Manado. Manado is close to the Philippines where gonorrhea resistance to ciprofloxacin (the drug of choice in Manado) has emerged.

Cysticercosis

NCID/DPD staff collaborated with national workers from several institutions to develop a protocol for surveillance and control of taeniasis and cysticercosis in Bali.

HIV/AIDS

NCHSTP staff participated in a workshop on modeling the HIV epidemic in Indonesia.

Plague

NCID/DVBID provided diagnostic reagents and controls for the serodiagnosis of plague and participated in evaluation of methods used for plague surveillance in Indonesia.

Silicosis

NIOSH scientists conducted a training workshop for 50 physicians on the ILO (International Labor Office) International Classification of Radiographs of Pneumoconioses. This workshop provided an excellent opportunity for physicians to exchange information on prevention and recognition of occupational lung disease and to standardize their thoracic radiographic readings with the ILO Classification System. The radiology seminar/training workshop was sponsored collaboratively by the ILO and the Ministry of Manpower and contained as its core element the intent to support the development of occupational and public health infrastructure in Indonesia. This workshop is also an integral part of the ILO/WHO Program on Global Elimination of Silicosis.

STDs

NCHSTP researchers completed the first sexual behavior survey by the University of Indonesia. Target populations for this survey included: female sex workers, sailors/seaport laborers, factory workers, truck drivers, and high school students. Also completed was a baseline STD prevalence survey in female sex workers by the Indonesian Epidemiology Network and a STD prevalence survey in low-income family planning patients in North Jakarta by The Population Council. NCHSTP staff also helped complete a baseline STD service delivery survey in CDC-AIDSCAP-supported clinics. Staff also worked to upgrade the laboratory and clinical capacity of CDC-AIDSCAP-supported clinics. The first round of training on STD syndromic management for health care providers is complete as well as a workshop on HIV prevalence estimates and AIDS case projections in Jakarta.

Vector Research

NCID/DPD, in collaboration with DoD entomologists, have scheduled the field evaluation of a rapid (5 minute) wick assay for identification of malaria vectors.

Zoonoses

NCID/DVRD collaborated with the United States Navy Medical Research Unit No. 2 and the Ministry of Health, Jakarta to test domestic cats for evidence of *Bartonella henselae* infections.

JAPAN

AIDS

Staff from NCID/OD taught part of an *AIDS in Asia and the Pacific* course (sponsored by CDC/NCHSTP) in Tokyo for senior public health officials of 25 Asian/Pacific nations in September 1997.

Arboviruses

NCID/DVBID staff provided educational materials and training to a Japanese scientist in molecular identification of mosquito specimens. They also collaborated with Japanese scientists to organize the arbovirus section of the International Congress of Tropical Medicine and Malaria, Nagasaki, November, 1996, and provided diagnostic reagents and/or reference services.

Cardiovascular Disease: Cholesterol and Related Lipids

Osaka Medical Center for Cancer and Cardiovascular Diseases (OMC), Osaka, Japan is the support center for lipid standardization in Japan. OMC provides lipid reference services in a domestic standardization program of Japanese clinical laboratories performing TC, HDL cholesterol, and TG. This program does not issue certificates. OMC also provides standardization for three epidemiological studies in Japan. In 1997, this laboratory certified twelve Japanese manufacturers of TC diagnostic products. In addition, 44 clinical laboratories were certified for TC through the CRMLN clinical laboratory program. The OMC was standardized for their LDL cholesterol beta-quantification reference method. They have performed comparisons with five Japanese manufacturers of new homogeneous LDL cholesterol reagents. These comparisons were not submitted for certification.

NCEH provided standardization support services to lipid research laboratories in the following institution:

Department of Epidemiology & Mass Exam CVD, Center for Adult Diseases, Osaka

Dengue

NCID/DVBID staff provided diagnostic reagents and/or reference service, and provided DEN-2 infectious clone to Nagasaki University.

Echinococcosis

NCID/DPD staff, in collaboration with Gifu University Medical School, conducted immunodiagnostic studies of echinococcosis and cysticercosis.

E. coli

Two NCID/DBMD epidemiologists, a laboratory supervisor, and an FDA field investigations officer visited Japan for consultation on the large *E. coli* O157:H7 outbreaks. The investigators provided advice on laboratory methods, data analysis, and outbreak investigation. NCID/DBMD staff completed pulsed-field get electrophoresis (PFGE) subtyping of *E.coli* O157:H7 isolates from outbreaks in Japan in the summer of 1996 and found that nine of 20 isolates from Osaka were highly similar or identical to isolates from the large outbreak in Sakai City, suggesting a common source. No perfect matches were found to any U.S. isolates.

Epidemiology Training

PHPPO, NCHSTP, EPO, and Emory University' s Rollins School of Public Health designed, developed, and implemented a four-week course, "Epidemiology and HIV/AIDS Training Course for Japanese Medical Experts" for 12 Japanese physicians in Atlanta, Georgia, January through February, 1997.

Gonorrhea

NCID/DASTLR staff provided training in susceptibility testing and straintyping to a microbiologist from Yokohama, Japan.

Hepatitis

NCID/DVRD initiated a collaboration with investigators at Nagoya Medical School (Nagoya) and the Institute of Genetics (Mishima) for development of an Internet-accessible International Hepatitis C Virus Database

Hemorrhagic Fever Viruses

NCID/DVRD provided reagents for viral hemorrhagic fever diagnostics to the National Institutes of Health, Tokyo.

Human Herpes Viruses

NCID/DVRD staff collaborated with staff at the National Institute of Infectious Diseases in Tokyo on a study of the role of HHV-6 in chronic necrotizing lymphadenitis.

Malaria

NCID/DPD completed an evaluation of the antimalarial activity of artemether in the cerebral malaria model (*Plasmodium coatneyi*) in the rhesus monkey, which included electron microscopic analysis.

Management Training

PHPPO staff met with staff of the Tokyo Ministry of Health to discuss potential management training issues in March, 1997.

Mine Studies

At the invitation of the Japan Technical Cooperation Center for Coal Resources Development (JATEC), a NIOSH researcher delivered three presentations about U.S. human factors research to improve underground coal miners' safety to JATEC officials, government officials, mine management, safety and training officers, inspectors, and workers. Discussions were also held with professors of Kyushu University and Kanazawa Institute of Technology. The discussions focused on human factors research activities in Japan and current research in human factors at PRL.

Mycotic Diseases

NCID/DBMD hosted, through the U.S.-Japan Joint Panel on Toxic Microorganisms, a researcher from Science University of Tokyo who worked to characterize *Fusarium* species isolated from human fusariosis patients for the production of mycotoxins as markers of disease activity. The fellowship was completed and two manuscripts were submitted for publication. Fusariosis is an emerging pathogen in immunocompromised hosts and fumonisin toxin-producing strains may provide a marker for early diagnosis.

Occupational Health

Occupational safety and health professionals from Japan visited NIOSH in May, 1997. The group of 15 was led by the Executive Director of the Japan Association for Working Environment (JAWE), which is the Japanese equivalent of NIOSH and OSHA combined. The DPSE Deputy Director and others helped arrange their visit. Because of their particular interest in instrumentation, a visit was arranged on May 13 to the Cincinnati OSHA facility that performs instrument evaluation, calibration, and repair for other OSHA offices. On May 14 the group came to the Hamilton labs to hear an overview of NIOSH activities and presentations specific to the two Divisions housed there. The visitors were interested in NIOSH staff visits to JAWE in the future.

Quality Assurance

A NIOSH/DRDS quality assurance specialist conducted a site-visit audit at the manufacturing facilities of respiratory protective equipment that is certified by CDC/NIOSH according to 42 CFR Part 84.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases. They also provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

Specimen Banking

An NCEH scientist served on the International Advisory Committee for the International Workshop on Ultra-Long-Term Cryogenic Preservation of Biological and Environmental Specimens. In addition to a presentation on the ASTRO software which manages the CDC Specimen Repository, CDC scientists presented a discussion of scientific and data management factors to be considered for the Biological and Environmental Specimen Time Capsule Project for 2001.

Toxicants (Organic)

Two Japanese researchers worked in NCEH laboratory for one month on analytical separation techniques.

MACAO

Lyme Disease

NCID/DVBID assisted with the development of a research proposal to study the biology and vector relationship of *Aedes albopictus* on Macao.

MALAYSIA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff provided training to a visiting scientist on the epidemiology of dengue.

Environmental Health

NCEH staff worked with Jamaican counterparts in order to assist in determining the cause of death of the 31 children in Sarawak, Malaysia. A toxicological investigation was started on July 1, 1997. Attempts were made to obtain samples of the original prescribed medicines, including traditional medicines, and to obtain accurate information about the use of traditional medicines prior to and during the illness.

One complete set of outpatient medications was obtained, plus information from health care providers on the medications used. There was no consistent pattern of consumption of specific food items or products. Only 30% of case families reported use of traditional medicines. Lab tests for the one complete set of medication tested negative for toxins.

HIV

NCID/DASTLR staff collaborated with the Malaysian Ministry of Health to examine the molecular epidemiology of HIV in Malaysia.

Vector-Borne Infectious Diseases

NCID/DVBID staff provided training to a Malaysian scientist in surveillance, prevention and control of vector-borne infectious diseases.

Viral Encephalomyelitis

NCID/DVRD provided in situ hybridization, immunohistochemical diagnostic testing and pathology consultation during an outbreak of viral encephalomyelitis.

MARIANAS

Salmonella and Shigella

NCID/DBMD consulted with the Department of Public Health Services for the Commonwealth of the Northern Marianas Islands regarding elevated incidence of Salmonella and Shigella, particularly on the island of Saipan. Staff received and serotyped 19 isolates of Salmonella and 6 isolates of Shigella. No single serotype of Salmonella or serogroup of Shigella predominated. A case-control investigation will be planned accordingly.

MYANMAR

Arboviruses

NCID/DVBID provided consultation and advice on laboratory-based surveillance for arbovirus diseases.

Dengue

NCID/DVBID provided advice and consultation on laboratory-based surveillance, prevention and control. DVBID also provided advice and consultation on laboratory diagnosis, biosafety and upgrading and provided diagnostic reagents.

NEPAL

Japanese encephalitis

NCID/DVBID staff provided advice and consultation on surveillance and laboratory diagnosis of JE in Nepal.

NEW ZEALAND

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratory in the following institution:

Clinical Biochemistry Department National Women' s Hospital Clinical Support Services, Auckland

Meningitis

NCID/DBMD collaborated with the Ministry of Health in production of a customized serogroup B vaccine for control of epidemic meningococcal disease in New Zealand and collaborated with New Zealand Public Health Commission and researchers at the University of Auckland to develop a protocol for immunogenicity and efficacy evaluation of a new vaccine for serogroup B meningococcal disease. This effort will be an important step in understanding of how useful outer membrane protein-based vaccines will be in controlling epidemic serogroup B meningococcal disease.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia and maple syrup urine disease screening tests to the neonatal screening laboratory located in Auckland.

Toxicants (Organic)

NCEH staff consulted with scientists on a statistically designed study to assess the internal dose level of dioxins and related compounds in the New Zealand general population. CDC scientists conducted preliminary serum assays to determine background levels of dioxins, furans, and PCBs in New Zealand. 100 samples are scheduled for analysis in 1998.

NORTH KOREA

Health Assessment

A NCEH/IERHP staff member accompanied Congressman Tony Hall to the Democratic People's Republic of Korea (North Korea) in April 1997 at the request of the US Office of Foreign Disaster Assistance. He evaluated the health and nutrition situation in the country, provided technical assistance to the congressional delegation, and identified priorities for future US government humanitarian aid. He also conducted briefings on the North Korean health situation for partner organizations following the evaluation.

Nutrition Assessment

NCCDPHP/DNPA participated in a nutritional assessment of 3,980 children attending 40 nurseries and kindergartens to determine the prevalence of malnutrition among young children. Questionnaires were administered to collect information on care, treatment, family support, and institutional access to resources. Findings included wide variations in the levels of malnutrition among institutions, prevalence of moderate and severe wasting as high as 33 percent, malnourished children were significantly more likely to have diarrhea, respiratory problems, skin diseases, or had parents who had died, and local staff were not properly trained in the recognition and treatment of malnourished children. Findings will be summarized in a report to donor agencies. The Democratic People' s Republic of Korea has suffered several major natural disasters over the last three years and ongoing serious economic problems which have led to severe food shortages.

PAKISTAN

Arboviruses

NCID/DVBID staff collaborated with scientists from the Aga Khan University in Karachi to investigate an epidemic of fatal hemorrhagic disease, including diagnostic support and hosting university staff in Colorado.

NCID/DVBID staff also provided diagnostic reagents and/or reference services.

Health Surveys

NCHS continued to provide technical assistance to Pakistan in the staff training, quality control, data processing, and analysis of a national health survey to investigate the nutritional and health status of the population and the patterns of disease in Pakistan since 1988. Data collection has been completed (four provinces, 18,000 protocol exams) and data processing has been completed. A preliminary report was presented at a conference in Islamabad in September 1997, and was presented at the American Public Health Association Meeting in November 1997.

PHILIPPINES

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff obtained a $500,000 grant from the Rotary Foundation of Rotary International to help develop a DHF prevention and control program in the Philippines and to provide technical assistance. NCID/DVBID staff provided diagnostic services and reference services for suspected cases of dengue and continue to evaluate the genetic topotype of dengue virus strains isolated from patients in the Philippines in order to investigate the molecular epidemiology of dengue in Asia. NCID/DVBID staff, with WHO support, also continued to collaborate with the Philippines Department of Health to develop a national plan for surveillance, prevention and control of dengue hemorrhagic fever.

Disaster Preparedness

NCEH/HSB staff presented a paper entitled "A modified cluster-sampling method for post-disaster assessment of needs" at the International Symposium on disasters and Health, sponsored by the University of the Philippines-Manila and the International Center for Medical Research, Kobe University, Japan, on October 16-18, 1996. The objective was to enhance the understanding and capabilities of participating countries in disaster management and mitigation.

Ebola Virus

NCID/DVRD conducted an epidemiologic investigation, in collaboration with the Research Institute for Tropical Medicine (RITM), of an outbreak of Ebola Reston in primate export facilities in the Philippines and developed and implemented a surveillance system in the country. Staff also provided laboratory training for a visitor from RITM and laboratory reagents and equipment for surveillance testing.

Gonorrhea

NCID/DASTLR, NCHSTP/DSTDP, the University of Washington (Seattle), the University of the Philippines (Manila), and Cebu Institute of Medicine, Cebu City, measured antimicrobial resistance, with specific emphasis on monitoring resistance to CDC-recommended doses of fluoroquinolones (ciprofloxacin) and broad-spectrum cephalosporins (cefixime) in female sex workers in Manila and Cebu City.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia and maple syrup urine disease screening tests to the neonatal screening laboratory located in Manila. Data analyses were performed and reports were developed for this laboratory.

Rabies

NCID/DVRD provided rabies diagnostic reagents to the Research Institute for Tropical Medicine as part of an ongoing collaborative project.

Tuberculosis

NCID/DASTLR, in collaboration with NCHSTP/DTBE and NCID/Division of Quarantine (DQ), confirmed identity of mycobacterial isolates, including *M. tuberculosis*, performed antimicrobial susceptibility studies on *M. tuberculosis* isolates, and provided consultation in support of a protocol entitled "Efficacy of the routine medical examination procedures for tuberculosis among immigrants." As part of this project, NCID/DASTLR, in collaboration with NCHSTP/DTBE, evaluated sputum collection and mycobacteriology laboratories and provided on-site consultation and training in sputum collection and basic mycobacteriology.

SINGAPORE

Arboviruses

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Yellow Fever

NCID/DVBID staff provided diagnostic assistance and/or reference services.

SRI LANKA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff provided advice and consultation on laboratory-based surveillance for DHF and continued collaboration with investigators at the Medical Research Institute, Colombo to investigate the epidemiology of dengue hemorrhagic fever in that country. Staff also provided laboratory diagnostic services for suspected cases of dengue and other diagnostic reagents and/or reference services.

Toxicants (Organic)

NCEH provided site experiences for a visiting scientist from the University of Colombo, Sri Lanka in the analysis of human samples for pesticides and industrial chemicals of concern. The Chlorinated Hydrocarbon Laboratory (CHL) was instrumental in establishing contacts that allowed the scientist to visit, for an extended period of time, laboratory facilities at the Georgia Department of Agriculture and the US Food and Drug Administration in order to gain hands on experience in the analysis of fresh fruits, vegetable, and processed foods for pesticide residues.

SOUTH KOREA

Hepatitis

NCID/DVRD hosted a guest researcher from the University Guro Hospital, Seoul, to provide training on detection of hepatitis B virus "a" determinant mutants.

Hemorrhagic Fever Viruses

NCID/DVRD has continued collaborative studies with Seoul National University to define the pathogenesis of hemorrhagic fever with renal syndrome (HFRS) in humans. They also hosted a guest researcher from Chung-Ang University to study the immunologic effects of HFRS pathogenesis. Reagents were developed for lab rat outbreak in foreign institutions.

Mycotic Diseases

NCID/DBMD hosted a physician-scientist from the Department of Dermatology, Yeungnam University Medical College, Taegu City who began a 1-year research visit to develop molecular probes for medically important filamentous fungal species in the Molecular Immunology Laboratory. This research is scheduled for presentation at the annual meeting of the American

Society for Microbiology, and will be applied to detect filamentous fungal DNA in tissues from patients with leukemia.

Occupational Exposure

An occupational health scientist from the Catholic University, Seoul, South Korea joined the Analytical Research and Development Branch of NIOSH in March, 1997, as a Guest Researcher. He has worked with a CDC scientist on a novel methodology for the determination of total isocyanate exposure in workplaces. The research involves investigating an approach to total isocyanate measurement that is potentially more accurate, faster, and requires much less interpretation than current total isocyanate methods.

Occupational Health

A NIOSH/DRDS researcher was involved in the development of the Pneumoconiosis Workshop at the Industrial Health Research Institute, Korea Industrial Safety Corporation (KISCO) in Korea, 1997. The Pneumoconiosis Workshop topics included chest X-ray Reading, Pulmonary Function Test, Quality Control of Medical Screening, and Epidemiology of Pneumoconiosis. NIOSH has implemented a 3-year agreement with the Korea Industrial Safety Corporation (KISCO) to facilitate staff exchanges for the purpose of training KISCO staff in OSH research techniques and related skills. Through this agreement, one Korean researcher was detailed to NIOSH for six months to work on analytic methods and quality control procedures for workplace environmental sampling.

Oral Health

NCCDPHP/DOH provided technical assistance to the government of South Korea on engineering aspects of water fluoridation. Staff provided advice on how to improve and correct the installation and design of fluoridation equipment in existing facilities and advice on how to improve designs for new sites, and lectures to dental school students on the engineering aspects of water fluoridation.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

Tularemia

NCID/DVBID provided consultation and diagnostic expertise in the identification of the first described tularemia case in humans. NCID/DVRD provided immunohistochemical testing and pathology consultation for the case of tularemia.

TAIWAN

Dengue

NCID/DVBID staff continued collaborative studies with scientists from the National Institute of Preventive Medicine and Taiwan National University in Taipei on dengue/dengue hemorrhagic fever in Taiwan and provided consultation and advice to the Department of Health, Executive Yuan, on surveillance, laboratory diagnosis, prevention and control of dengue/dengue hemorrhagic fever.

Hantavirus

NCID/DVRD collaborated with National Defense Institute of Preventive Medicine in Taipei to study the mode of transmission, the geographic distribution of rodents and antibody prevalence in humans of Hantavirus.

Management Training

PHPPO staff met with staff of the Taiwan provincial Department of Health to discuss possible plans for establishing a leadership/management training program in Taipei, Taiwan.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Occupational Health

NIOSH/DSHEFS. Three NIOSH researchers completed an internationally co-authored technical article on work performed in Taiwan entitled, *Proposed model for estimating dose to inhabitants of Co-60 contaminated buildings*.

In December, 1997 a NIOSH researcher visited the National Taiwan University (NTU), the Institute of Occupational Health (IOSH), and attended the Chinese Association for Aerosol Research in Taiwan (CAART) International Conference in Chungli. He gave a short workshop on fiber measurements for students at NTU and toured several laboratories involved in aerosol work. The main topic of discussions with IOSH was the adoption of the international sampling conventions. They were quite interested in whether NIOSH will adopt the new conventions, especially for inhalable dust sampling, and how the sampling will be implemented with specific samplers.

Occupational Injuries

During April 28 - May 5, a NIOSH/DSR researcher visited the National Taiwan University (NTU) and the Taiwan Institute for Occupational Safety and Health (IOSH) in Taipei, Taiwan. He was invited to give a short course on ergonomics and safety to the University graduate

students and industrial safety practitioners of the country as well as to exchange research experience with faculties at the University and researchers at the IOSH.
The NIOSH researcher gave six lectures on ergonomics and safety, including an overview of ergonomics, human performance engineering, anthropometry, biomechanics, work physiology, and safety management at the National Taiwan University. He also attended the annual review of some IOSH projects. The projects are related to ergonomics and safety guidelines of computer workstations, measurement of body-segment physical properties, anthropometry, and construction safety.

Plague

NCID/DVBID provided consultation and reagents to the National Institute of Preventive Medicine.

Toxicants (Organic)

NCEH, with funding from EPA, is collaborating with the Environmental and Occupational Research Institute (in New Jersey) on a study relating polychlorinated dibenzofuran and polychlorinated biphenyl serum levels in the second generation (offsprings) of a Yucheng population with several adverse effects. Serum specimens will be analyzed in 1998.

THAILAND

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Chlamydia, Gonorrhea

NCID/DASTLR staff, in collaboration with NCHSTP/DSTDP, completed laboratory analyses for STDs in support of the HIV/AIDS Collaboration (HAC) in Thailand. The prevalence of *C. trachomatis* and *N. gonorrhoeae* among pregnant women attending antenatal clinics in Bangkok and Chiang Rai using newly developed PCR and ligase chain reaction tests with urine samples was assessed. Women attending such clinics represent a sentinel population that allows comparison both across populations and over time. Prevalence of both STD agents was reduced in accordance with establishment of a recent national policy on condom use. A report of the results has been submitted for publication.

Cholera

NCID/DBMD published a report of an outbreak of *V. cholerae* O139 infections among tourists to Asia. Measurement of antibodies to cholera toxin identified 15 cases, in addition to two culture-confirmed cases. Investigation implicated a rice dish served in Bangkok as the source. This is the first investigation showing a route of transmission for this organism.

Dengue

NCID/DVBID staff provided training to a visiting scientist on dengue surveillance, entomological surveillance, and community-based dengue prevention programs. They also continued a Cooperative Research and Development Agreement with Mahidol University in Bangkok, to use c-DNA technology to develop second-generation recombinant dengue vaccines using candidate vaccine virus strains attenuated at Mahidol University.

Diarrheal Diseases

NCID/DVRD scientists are helping establish studies of rotavirus disease burden.

HIV/AIDS

NCID/DASTLR staff, in collaboration with HAC, concluded a study designed to address the molecular epidemiology of HIV in all four regions of Thailand. The sample base was used to evaluate the sensitivity and specificity of subtype-specific oligonucleotide probes for the rapid determination of subtypes in Thailand. Oligonucleotide probes for Thai B and subtype E strains have been established.

NCID/DASTLR staff, in collaboration with HAC, is participating in a prospective study involving injecting drug users (IDU) in the Bangkok area who are being enrolled post-seroconversion and followed over time. The subtype diversity within this group is being determined. The IDU population in Bangkok has been identified as a potential group for vaccine efficacy trials. Approximately 50 seroconverters have been identified to date. This cohort is also being evaluated for examination of immunological and virological parameters and possible relation to subtype-specific differences.

NCID/DASTLR staff is collaborating with HAC to define patterns of HIV perinatal transmission and develop intervention strategies. Studies to date have centered on subtyping and determination of viral loads in women who transmit HIV versus those who do not.

NCID/DASTLR staff is collaborating with HAC to define mechanisms of natural resistance to HIV infection in highly exposed persistently seronegative individuals. Advanced cell separation and tissue culture techniques have been developed in conjunction with lymphocyte cytokine assays to study the innate ability of CD8 lymphocytes to secrete soluble factors and suppress HIV-1 infections.

NCHSTP researchers have begun Phase II discussions and programming for the Thailand Perinatal AZT Clinical Trial. Staff has reviewed current studies at the HIV/AIDS Collaboration (HAC) in Thailand and discussed related HIV lab studies. A NCHSTP scientist attended a Cytotoxic T-cells workshop to present “Cytotoxic T-cells in HIV”.

Japanese encephalitis

NCID/DVBID staff provided advice and consultation on a Ministry of Health program to evaluate the efficacy of Japanese encephalitis vaccine in Thailand.

NCID/DVBID staff also collaborated with the Ministry of Health and CDC HIV program to study immunogenicity of Japanese encephalitis vaccine in HIV-infected children.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead. An NCEH scientist presented a series of lectures on analysis and overall quality assurance issues for serum zinc and copper and blood lead, at the invitation of the National Institute of Health in Bangkok.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, and phenylketonuria screening tests to Thailand's neonatal screening laboratory located in Nonthaburi. Data analyses were performed and reports were developed for this laboratory.

A NCEH scientist traveled to Thailand to provide technical services to the Ministry of Health, Thailand for development of a national newborn screening program for detection of metabolic disorders along with an associated national quality assurance program.

Plague

NCID/DVBID staff provided diagnostic reagents and controls for the serodiagnosis of plague.

Surveillance

NCCDPHP/DACH invited a Thailand delegation of scientists from the Ministry of Health to visit CDC to learn more about the BRFSS and other chronic disease activities.

Syphilis/Chancroid/Herpes

NCID/DASTLR staff, in collaboration with NCHSTP/DSTDP, Johns Hopkins University, and the Thai Ministry of Health, will continue to test samples collected in the HIV/AIDS epidemiologic study for GUD. Smears collected are examined by direct fluorescent antibody tests for the presence of pathogenic treponemes, herpes simples virus, and chancroid. Serum specimens are analyzed for antibodies to *Haemophilus ducreyi*. Two hundred forty-two specimens were received for direct fluoresecent antibody test for *Treponema pallidum* (DFA-TP). Ulcer specimens were analyzed by M-PCR. Three manuscripts describing these studies have been submitted.

Tuberculosis

NCID/DASTLR, in collaboration with NCHSTP/DHAP-SE, provided consultation on mycobacteriology laboratory methods in support of TB projects.

Zoonoses

NCID/DVRD collaborated with United States Armed Forces Research Institute for Medical Science, Bangkok to estimate the prevalence of *Bartonella henselae* infection in domestic cats and to isolate *Bartonella* from them for genetic comparisons with other geographic strains.

VIETNAM

Arboviruses

NCID/DVBID staff provided consultation and advice on surveillance and laboratory diagnosis of arboviruses, provided training to two visiting scientists on laboratory diagnosis of arboviral diseases, and provided other diagnostic assistance and/or reference services.

Epidemiology Training

A NCIPC senior scientist traveled to Hanoi, Vietnam in August, 1997, where he assisted the Hanoi School of Public Health to develop teaching modules and curriculum for a demographics course for the collaborative CDC/Rockefeller/PHSWOW program.

Hepatitis

NCID/DVRD conducted a site visit funded by the Western Pacific Region of WHO to evaluate the domestic production of EIA kits for the detection of HBsAg and plasma-derived hepatitis B vaccine. With outside funding support, one scientist from NIHE is presently working on the development of a yeast recombinant hepatitis B surface antigen construct encoding for the prevailing subtype circulating in Vietnam.

Japanese encephalitis

NCID/DVBID staff collaborated with physicians at Bach Mai Hospital in Hanoi and at the University of Minnesota, to investigate the etiology of viral encephalitis in North Vietnam.

Occupational Health

In April and May of 1997, four staff members from NIOSH traveled to Vietnam to begin implementation of collaborative activities with the Vietnamese National Institute of Occupational and Environmental Health (NIOEH). Options for future activities will be based on the principles that (1) the efforts would address priorities that NIOEH believes to be important, (2) the efforts will be in areas that NIOSH has expertise and made sense for NIOSH assistance in capacity building, (3) building linkages between NIOEH and other groups within Vietnam

should have the greatest impact on worker protection, and (4) NIOSH and its staff will be enriched and learn from their Vietnamese partners in all collaborations. Initial follow-up activities currently focus on efforts to bring two Vietnamese researchers over to the United States for fellowships with NIOSH Divisions. Efforts are also underway to begin work on a curriculum for a training program on prevention of exposure to pesticides.

NIOSH/DSHEFS. Four NIOSH researchers were hosted April 26 – May 12, 1997 by the Vietnamese National Institute of Occupational and Environmental Health (NIOEH) in the Ministry of Health to determine needs for the development of occupational hygiene in Vietnam. Occupational health organizations and workplaces visited include: NIOEH, Labour Protection Institute, provincial preventive medicine and occupational health centers, medical and public health schools, coal mine, tobacco factory, rubber plantation and manufacturing facility, farms, construction sites, and small business enterprises.

Tuberculosis

NCID/DASTLR, in collaboration with NCHSTP/DTBE and NCID/DQ, provided consultation to improve medical screening of immigrants to the United States.

Europe

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AUSTRIA

Hantavirus

NCID/DVRD continued a collaboration involving ELISA screening of specimens from rodents using Hantaan antigen and PCR analysis of ELISA positive rodents. DVRD was also instrumental in the identification of hantavirus in Austrian rodents.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism and phenylketonuria screening tests to Austria' s neonatal screening laboratory located in Wien. Data analyses were performed and reports were developed for this laboratory.

BELGIUM

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Wetenschappelijk Onderzoek - Laboratorium voor Lipoproteine Chemie, Gent

Clinical Research Laboratories - Europe, Zaventem

Bioanalytical Research Corporation, Gent

Health Assessment

A representative of Belgium is serving with the international working group, coordinated by NCEH/EHLS, for the development of recommendations for studying biomarkers of renal damage from nephrotoxic substances in clinical models.

In collaboration with a scientist from the University of Antwerp and ATSDR, NCEH/EHLS is providing assays for the follow-up study of biomarkers renal effects of toxic exposures and chronic disease to define the health conditions that are associated with elevated levels of these tests. The Belgian scientist will provide several new assays for this study.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease and homocystinuria screening tests to Belgium' s neonatal screening laboratory

located in Brussels. Data analyses were performed and reports were developed for this laboratory.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the cities of Charleroi and Ghent to provide a physical activity surveillance instrument, data collection, and data analysis.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

BOSNIA

Health Assessment

CDC staff traveled to the former Yugoslavia in October 1997 to assist the International Medical Corps (IMC) in evaluating the status of health services at the primary level in Srpska, Serbia, Montenegro, and Macedonia and the role of non-governmental organizations providing health services.

Injury Prevention

A NCIPC scientist traveled to Sarajevo, Bosnia for 3 weeks to provide assistance to the International Medical Corps in Bosnia related to primary care. He and other injury professionals assessed primary care needs, and made recommendations for future activities.

BULGARIA

Haemophilus influenzae

NCID/DBMD conducted a training session on isolation and identification of *Haemophilus influenzae*.

Streptococcus pneumoniae

NCID/DBMD conducted a training session on isolation and identification of *Streptococcus pneumoniae*.

CROATIA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

NCID/DVBID staff provided antigen training to a Croatian scientist.

Hantavirus

NCID/DVRD provided molecular biology and diagnostic serology support for hemorrhagic fever with renal syndrome in conjunction with the Institute of Immunology, Zagreb, and assisted in identification of Hantavirus strains causing diseases.

CZECH REPUBLIC

Cardiovascular Disease: Cholesterol and Related Lipids

The CDC reference laboratory provided confirmatory analyses on survey samples for the Institute for Clinical and Experimental Medicine (IKEM), Prague, Czecholovakia, and provided reference method results for cholesterol, HDL cholesterol, and triglyceride.

NCEH provided standardization support services to lipid research laboratory in the following institution:

Institute for Clinical and Experimental Medicine, Laboratory for Atherosclerosis Research, Prague.

Cryptosporidiosis

NCID/DPD continued studies to identify and differentiate strains of *Cryptosporidium* and microsporidia isolated from HIV-infected patients.

Giardiasis

NCID/DPD developed and presented two courses with in-country collaborators on PCR and genomic sequencing techniques.

CYPRUS

Surveillance

NCCDPHP/DNPA developed a nutrition surveillance strategy utilizing growth monitoring data and school entry examinations and newly developed data sources to enable monitoring of the nutrition situation in the country. DNPA also prepared a nutrition status survey.

DENMARK

Foodborne Disease

NCID/DBMD hosted an epidemiologic fellow from Denmark at the WHO Collaborating Center for Foodborne Disease Surveillance.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

Toxic Oil Syndrome (TOS)

As a lead collaborator with Spanish scientists in the international investigation of the Toxic Oil Syndrome (TOS), NCEH staff participated in the 22nd meeting of the Joint World Health Organization (WHO)/Fondo de Investigaciones Sanitarias (FIS) Steering Committee for research. The purpose of the meeting was to assess the progress in TOS research and to evaluate research proposals for funding by the FIS. The investigation of TOS is scientifically linked to food supplement contamination research such as L-Tryptophan.

Toxicants (Organic)

NCEH is in the final stages of its collaboration with Odense University and the National Environmental Research Institute in the analysis of umbilical cords taken from birthing mothers in the Faroe Islands. Data will be used to assess neurobehavioral cognitive effects of in-utero exposure to polychlorinated biphenyls, mercury, and organochlorine pesticides.

NCEH completed the analyses of about 1400 serum specimens from a Danish serum bank for examining the relationship between serum levels of polychlorinated biphenyls and organochlorine pesticides. Data are being analyzed. Other collaborative studies between NCEH and a Odense University professor are being examined.

FINLAND

Diabetes

NCCDPHP/DDT’ s Director spoke on "Evaluating National Programs" in a symposium entitled, "Building and Implementing National Diabetes Programs" at the 16th International Diabetes Federation Congress in Helsinki, Finland.

Environmental Health

NCEH staff conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

Ergonomics

A NIOSH/DBBS research psychologist attended the 13th International Symposium on Night and Shift Work, held June 23-27, 1997, in Majvik, Finland, to present a paper entitled "Work Schedule Factors in Upper Extremity Fatigue," and chair a paper session on the topic of Shift Work and Safety.

A NIOSH/DBBS research physiologist attended the International Ergonomics Associations 13th Triennial Congress in Tampere, Finland and presented three invited lectures on the NIOSH lifting equation and co-presented a workshop on manual material handling assessment methods. The NIOSH scientist met with a scientist from the Finnish Institute of Occupational Health to discuss a collaborative study on the development and testing of a three-dimensional dynamic EMG driven spinal biomechanical model. The results of the evaluation were presented at the International Ergonomics Association Triennial Meeting in Tampere, Finland.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, phenylketonuria, and congenital adrenal hyperplasia screening tests to Wallac Oy (Delfia) and Labsystems Oy who are manufacturers of reagent kits used for newborn screening tests. Data analyses and reports were developed for these laboratories.

CBB personnel are working on a program with a Finnish scientist to standardize measurements of thyroid hormone worldwide.

Occupational Exposure

During FY 1997, there was a visiting scientist to NIOSH from the Oulu Regional Institute of Occupational Health, Helsinki, Finland. The Analysis and Field Evaluations Branch (AFEB), Division of Safety Research (DSR) provided staff to collaborate with him on a project concerned with injury and exposure to ambient cold temperatures. After a series of meetings and discussions, National Climatic Center weather data and Mine Safety and Health Administration working hours and injury data were obtained to carry out the analyses of a weather-injury association.

Occupational Health

A NIOSH/DRDS scientist participated in the "International Workshop on Asbestos, Asbestosis and Cancer – Criteria for clinical diagnosis," sponsored by the Finnish Institute of Occupational Health.

In support of the NIOSH/FIOH Cooperative Agreement, "Health and Exposure Surveillance of Ural Regional Asbestos Miners and Millers," the scientist collaborated with members of FIOH in Helsinki, publishing exposure assessment findings comparing traditional gravimetric sampling and fiber counting techniques.

NIOSH/DSHEFS. A senior NIOSH researcher, who serves on the executive committee of the International Congress on Occupational Health and Epidemiology (ICOH), participated in two ICOH scientific committees: the International Congress on Occupational Health and Epidemiology and the Scientific Committee on Musculoskeletal Diseases.

Occupational Injuries

NIOSH researchers provided technical assistance to, and negotiated collaborative research with, the Oulu Regional Institute of the Finnish Institute of Occupational Health (FIOH) on occupational injury surveillance, epidemiology and prevention. They also served as principal instructors for an international course in occupational safety and health surveillance. The majority of students were senior Russian academicians and researchers from Murmansk Oblast, Kola Peninsula and Karelia Republic. A NIOSH scientist spoke at and served as consultant for "Co-operation between Occupational Health and Safety Research Institutes Serving the Barents Region" workshop. The Barents Council and Kola Research Institute (Murmansk Oblast, Russia) have asked NIOSH to provide assistance in constructing and utilizing their injury and occupational health surveillance system.

Viral Diseases

NCID/DVRD provided reagents for numerous viruses.

FRANCE

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Cancer

A NIOSH/DRDS scientist participated in an IARC workgroup on the evaluation of the carcinogenic risk of silica, some silicates, coal dust, and para-aramid fibrils. He prepared the draft exposure chapter for the section on coal dust and was a working participant in the deliberations on each substance.

A NIOSH/EID researcher attended the International Agency for Research on Cancer (IARC) Working Group meeting on the *Evaluation of Carcinogenic Risks to Humans: Volume 68: Some Silicates, Dusts, and Organic Fibers* in Lyon, France (October 15-October 22). Seven monographs were prepared: silica, attapulgite, sepiolite, wollastonite, zeolites, coal dust, and para-aramid fibers.

Environmental Health

NCEH staff conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

A NIOSH/DBBS researcher was an invited lecturer and participant in the Department of Pharmacology, Toxicology and Environmental Medicine, Sixth Annual Summer School in Immunotoxicity, Biomarkers of Immunity: From Animals to Man, sponsored by INSERM U 80 Lyon-RTH Laennec, France. The title of the lecture was Epidemiology Studies in Immunotoxicity Evaluations.

Health Statistics

Over the past 2 years NCHS has provided the French Ministry of Labor and Social Affairs and the Canadian Ministry of Health with extensive information on health measures for the United States. The information will be included in a multi-country study of health indicators. A draft of each chapter of the report was reviewed and possible modifications and improvements discussed. Topics to be included in the report are: organization of care in each country, demographic indicators, perceived health and cause-specific mortality, health expenditures, personnel, equipment and other material resources, use of hospital services, surgery, and ambulatory care.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, galactosemia, and congenital adrenal hyperplasia screening tests to France' s two neonatal screening laboratories located in Paris and Lomme Cedex. Data analyses were performed and reports were developed for these laboratories.

NHANES

A NCEH scientist presented a seminar on preliminary data from NHANES III, as well as planned analyses for NHANES IV at the International Agency for Research in Cancer in Lyon. U.S. population normative data for 25-OH-vitamin D was presented at the 10^{th} International Vitamin D workshop in Strasbourg.

Occupational Exposure

A representative of NIOSH' s Education and Information Division (EID) participated in an IARC working group in Lyon, France. The purpose of this meeting was to develop a monograph about polychlorinated dibenzo-para-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). This working group also determined that the scientific evidence was sufficient to classify 2,3,7,8-TCDD, commonly known as dioxin, as a category 1 or carcinogenic to humans.

Occupational Health

NIOSH/DSHEFS. NIOSH/DSHEFS was involved in a cooperative agreement with IARC in France in the conduct of *International Collaborative Study of Nuclear Industry Workers*. Specifically, this is a collaborative study with 14 countries contributing cohorts for a combined cancer mortality study designed to detect and quantify small increases in cancer risk in workers chronically exposed to low doses of ionizing radiation.

Rabies

NCID/DVRD initiated collaborative efforts to standardize the challenge virus used in rabies fluorescent focus inhibition tests employed as the test to measure neutralizing antibodies and to compare existing tests and techniques.

Reproductive Toxicology

A NIOSH/DBBS researcher was an invited participant at the INSERM conference entitled: "Environmental Impact on Male Reproductive Function" held in Aix-les Bains, France. Participants reviewed the latest research and discussed where future research should focus. Reports summarized the effects of both endocrine mimicking chemicals and anti-hormone chemicals and the level of threat to human health that actually exists - topics of concern to both NIOSH and the international community.

Salmonella

NCID/DBMD evaluated 20 new serotypes of Salmonella sent by the WHO Collaborating Center for Reference and Research on Salmonella, Pasteur Institute, Paris, France, and identified 5 new serotypes or variants identified in the U.S.

GERMANY

Arboviruses

NCID/DVBID staff provided training to a German scientist in the diagnosis of and molecular epidemiology of arboviruses, and provided diagnostic reagents and/or reference services.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratory in the following institution:

Institut fur Klinische Chemie und Laboratoriumsmedizin - Zentrallaboratorium, Munster

Diabetes

NCCDPHP/DDT assisted in the preparation of a conference on the treatment of obesity held in Deidesheimer, Germany. NCCDPHP/DDT presented a paper and developed a manuscript on epidemiologic evidence relating weight loss and mortality in persons with diabetes and presented, "What are the Benefits of Weight Loss?" at the Deidesheimer Gesprach Meeting on Obesity in Deidesheimer, Germany.

Ebola Virus

NCID/DVRD continued to provide diagnostic methods for hemorrhagic fever; offered a lab safety consultation for Marburg BSL-4 lab. They collaborated with scientists from the Institute for Virology, University of Marburg to further characterize the molecular structure of Ebola and Marburg viruses allowing the development of better diagnostic assays for these highly pathogenic agents.

NCID/DVRD provided photomicrographs to ZDF German television for filming footage of Ebola for news coverage.

Environmental Health

NCEH conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

A NIOSH/DRDS researcher presented findings at the19th Mycotoxin Workshop, Munich, Germany, on pulmonary hemosiderosis in infants and the connection with contamination of indoor and Stachybotrys atra and other fungi.

Epidemiology Training

EPO staff members served as faculty in two courses at the Robert Koch Institute, Berlin, Germany, June 1997. A NCIPC researcher taught a course in applied public health in collaboration with EPO.

Hantavirus

NCID/DVRD scientists are working with German scientists on the molecular structure of several *Puumala* strains of hantavirus. This research will improve diagnostics and knowledge of the geographic distribution of the disease. Scientists provided reagents to collaborator at the University of Marburg.

Health Assessment

Two representatives of Germany are serving with the international working group, coordinated by NCEH/EHLS, for the development of recommendations for studying biomarkers of renal damage from nephrotoxic substances in clinical models.

Hepatitis

NCID/DVRD has a cooperative Research and Development Agreement between Hepatitis Branch, CDC, and Boehringer Mannheim to produce better immunodiagnostic reagents for the detection of anti-HCV activity.

NCID/DVRD collaborated with scientists from Octapharma, Frankfurt, and the Paul Erhlich Institute, Frankfurt, to characterize Hepatitis A Virus sequences present in factor VIII concentrates.

HIV

NCID/DASTLR staff collaborated with investigators from the University of Freiburg to conduct a prospective study of the prevalence of infection by four simian retroviruses in occupationally exposed humans.
NCID/DASTLR staff collaborated with German investigators to develop a rapid assay for the differentiation between HIV group M and group O infections.

Micronutrient Malnutrition

A NCEH scientist consulted with other scientists at the Regional Conference on Elimination of Iodine Deficiency Disorders (IDD) in Central and Eastern Europe, the Commonwealth of Independent States, and the Baltic States. The conference focused on the role of IDD in the development of thyroid cancers in persons exposed to radioactive iodine, and on identifying constraints in, and solutions for, the implementation of national IDD programmers.

Mycotic Diseases

NCID/DBMD performed immunohistologic tests to confirm the diagnosis of histoplasmosis in patients' specimens referred by the Robert Koch Institute, Berlin.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease and homocystinuria screening tests to Germany's six neonatal screening laboratories located in Berlin, Cottbus, Ronnenberg, Benthe, and Stuttgart. Data analyses were performed and reports were developed for these laboratories.

A researcher from the Max Planck Institute, FRG is collaborating with CBB personnel on software development for immuno phenotyping data generated using flow cytometry.

Occupational Health

NIOSH/DSHEFS. A NIOSH researcher participated in the symposium, *Dioxins and furans: epidemiologic assessment of cancer risks and other human health effects*, which was held in Heidelberg, Germany on November 7–8, 1996. The meeting was hosted by the Deutsches Krebsforschungszentrum (DKFZ). The meeting facilitated the sharing of the latest epidemiologic information on dioxins and furans and helped to identify areas needing further study.

Physical Fitness

NCCDPHP/DNPA's MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in former East Germany to provide a physical activity surveillance instrument, data collection, and data analysis.

Rabies

NCID/DVRD consulted with national and local authorities in Dusseldorf on surveillance, prophylaxis, and control issues related to the possible introduction of cases from areas endemic for dog rabies.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

Surveillance

NCCDPHP/DACH continued to provide consultation to the University of Munich for carrying out a lifestyle and health BRFSS survey.

Toxicants (Organic)

NCEH scientists collaborated with laboratories in Germany to develop an international proficiency testing program for measuring volatile organic compounds in blood. Work has

shown that the use of isotope dilution-mass spectrometry helps prevent unacceptable measurement bias.

NCEH scientists collaborated on inter-laboratory comparisons of PCB and chlorinated pesticide analyses. A laboratory at the University of Erlangen (Germany) was the central laboratory for these studies because it is the National Reference Laboratory for Germany. The CDC laboratory met or exceeded all acceptance criteria and received full certification from the German Laboratory. NCEH scientists continue their collaboration for assessing human exposure to organic toxicants with scientists at the University of Erlangen.

Vector Research

NCID/DPD staff are advising a doctoral candidate in the Institut fur Medizinische Parasitologie at the University of Bonn. The student is using molecular techniques to differentiate the European members of the *Anopheles maculipennis* species complex.

NCID/DPD collaborated with investigators at the European Molecular Biology Laboratory in Heidelberg on the development of a high density microsatellite locus genetic map for the mosquito *Anopheles gambiae* and the use of this map to determine the genetic basis for malaria parasite encapsulation by a *Plasmodium*-refractory strain of this mosquito.

GREECE

Environmental Health

NCEH staff conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

Hantavirus

A NCID/DVRD scientist traveled to University of Thessalonika to provide RNA templates and primers. He advised and provided training on hantavirus detection by PCR, case and tissue handling, and genetic analysis. DVRD provided molecular and serologic support of HFRS studies and ongoing diagnostic and genetic support.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Greece' s neonatal screening laboratory located in Athens. Data analyses were performed and reports were developed for this laboratory.

HUNGARY

Cryptosporidiosis

NCID/DPD initiated studies to share primers for screening for drug evaluation and identification of *Cryptosporidium.*

Diabetes

NCCDPHP/DDT provided consultation to the mid-term review of the World Bank' s "Health Services and Management Project," which includes efforts to reduce the gap in health experiences between western and eastern Europe by emphasizing the importance of needs assessment and cost-effectiveness analysis in health services planning. DDT undertook a detailed review of the Kalosca Primary Prevention Project.

Hepatitis

NCID/DVRD, in association with WHO and the Viral Hepatitis Prevention Board, sponsored a meeting at CDC on the prevention and control of hepatitis B in Central and Eastern Europe and the newly independent states

Human Herpes Viruses

NCID/DVRD staff provided investigators in Hungary with methods and reagents for diagnosis of HHV-6 and HHV-7.

ICELAND

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratory in the following institution:

Heart Preventive Clinic, Reykjavik

IRELAND

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID provided diagnostic reagents and/or reference services.

Health Education

A NIOSH educator from the Education and Information Division (EID) presented a paper entitled *Promoting Occupational Safety and Health in Vocational, Industrial, and Technical Education Programs* at the European Union Conference - Educating in Safety: A European Conference on Integrating Health and Safety into the Education System. This presentation explained the NIOSH/EID occupational safety and health activities related to vocational education programs in the United States.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Ireland' s neonatal screening laboratory located in Dublin. Data analyses were performed and reports were developed for this laboratory.

Neural Tube Defects

In collaboration with scientists from St. James Hospital, Dublin, Ireland, NCEH continued to provide consultation, training, and analytical support to Beijing Medical University for the CDC/PRC Folate/Neural Tube Defect Study. This method will facilitate folate monitoring in future prevention and intervention programs. Additionally, NCEH and Dublin scientists are evaluating specimens from NHANES III with extremely elevated vitamin B12 levels by multiple assay methods to determine possible methodological bias.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in Belfast to provide a physical activity surveillance instrument, data collection, and data analysis.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

ITALY

Cardiovascular Disease: Cholesterol and Related Lipids

The San Raffaele Hospital Reference Laboratory, Milan, Italy has organized an external QA scheme for the GISSI prevention project. The scheme is based on frozen samples (3 events/year, 2 levels per event.) About 100 laboratories participate in the program. San Raffaele Hospital Reference Laboratory prepares the samples, provides target values for TC and HDL cholesterol,

and evaluates the data. The results from four years' work with the GISSI project were published in the peer-reviewed literature in 1997. In addition, 6 clinical laboratories were certified for TC through the CRMLN clinical laboratory program. This laboratory has also assisted European manufacturers of homogeneous HDL reagents by providing reference services (that have not lead to certification.)

This laboratory has assisted in the development of a more practical version of the CDC triglyceride reference method that substitutes enzymatic analysis of reference-procedure hydrolysates for the chromotropic acid method. This method is being developed as a triglyceride designated comparison method.

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Laboratorio Anal Clin HS Raffaelle Inst di Ricovera E Cura Acarat Scien, Milano

Instituto de Clinica Medica Generale Atherosclerosis Research Unit - Ospedale

Environmental Health

NCEH staff conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

Health Assessment

In collaboration with a researcher from the University of Parma and NIOSH, NCEH/EHLS is providing assays for a study of the renal effects of occupational perchloroethylene exposure among dry cleaners. The Italian researcher will provide his assay for brush border antigens (BBA) for this study.

Human Herpes Viruses

NCID/DVRD staff collaborated with investigators at the University of Rome on a study of the reproducibility of detecting HHV-8 in semen.

NCID/DVRD staff provided investigators at the University of Bologna with control serum specimens to use in studies of the role of HHV-6 and HHV-7 in disease.

Micronutrient Malnutrition

NCEH scientists provided training in analysis of fat-soluble vitamins to scientists from Italy as part of the Program Against Micronutrient Malnutrition.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, maple syrup urine disease and homocystinuria screening tests to Italy' s neonatal screening laboratory located in Rome.

Occupational Health

NIOSH/DSHEFS/DBBS. A NIOSH researcher presented a poster presentation entitled *Mortality Patterns among the International Brotherhood of Electrical Workers* at the Second World Congress for Electricity and Magnetism in Biology and Medicine in Bologna, Italy, in June, 1997. The study evaluated the mortality experience of 31,068 members of the U.S. Electrical Workers' Union who worked in the construction industry and died between 1982 and 1987. The findings of excess cause-specific mortality for several kinds of cancer and electrocution may be compared with international studies of electrical workers. The results overall suggested that construction electrical work is a hazardous trade and that more detailed investigations of occupational risk factors is needed.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the city of Frivoli to provide a physical activity surveillance instrument, data collection, and data analysis.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases; provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

Toxicants (Organic)

A collaborative study was continued to study the relationship among dioxin exposure, health effects, and markers of susceptibility in Seveso, Italy. In a related study of the Seveso population, NCEH scientists found a mean half-life of dioxin in adults to be 8.2 years. Another study to examine the relation between dioxin exposure in Seveso and endometriosis was begun. NCEH scientists in collaboration with Italian researchers found an altered sex ratio in children born to parents who were highly exposed to TCDD in Seveso. Several hundred additional serum specimens are being analyzed to determine whether mother' s or father' s levels of dioxin are more responsible for the altered sex ratio.

NCEH scientists collaborated with laboratories in Italy to develop an international proficiency testing program for measuring volatile organic compounds in blood. Work has shown that the use of isotope dilution-mass spectrometry helps prevent unacceptable measurement bias.

NETHERLANDS

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Cardiovascular Disease: Cholesterol and Related Lipids

The Lipid Reference Laboratory (LRL), University Hospital "Dijkzigt", Rotterdam, The Netherlands performs instrument and reagent evaluation for manufacturers using the CRMLN protocols for certification of manufacturers. The LRL also cooperates with the Dutch EQA Society (180 laboratories participating) to set target values on calibrators and controls and to develop and select candidate reference materials and controls for total cholesterol (TC) and HDL cholesterol (HDL.) The LRL has begun a pilot HDL survey for clinical laboratories in order to document analytical imprecision, bias, and total error of current methods and to evaluate the suitability of HDL calibrators. By operating well-standardized routine methods for serum lipids, the LRL sometimes functions as a core lipid laboratory in prospective clinical trials or performs serum lipid determination in the framework of ongoing cardiovascular risk factor monitoring projects coordinated by the Dutch National Institute of Public Health.

In addition, two clinical laboratories were certified for TC through the CRMLN clinical laboratory program.
NCEH provided standardization support services to lipid research laboratories in the following institution:

Centraal Klinisch Chemisch Laboratorium, Lipid Reference Laboratory, University Hospital, Rotterdam

Dengue

NCID/DVBID staff provided laboratory diagnostic reagents and provided diagnostic reference services.

Epidemiology Training

A NIOSH scientist taught a class in a course entitled, "Occupational and environmental epidemiology, principles of exposure assessment."

Leptospirosis

NCID/DBMD consulted with staff members of the WHO Collaborating Center for Leptospirosis in the Royal Tropical Institute to develop laboratory collaborations to evaluate new diagnostic methods for leptospirosis. A variety of new technologies, appropriate for developing and

developed countries, are available for diagnosis of leptospirosis. Staff expect the testing and broad application of these technologies will reveal that leptospirosis is a much under recognized important infectious disease in many tropical countries.

Malaria

NCID/DPD completed sample and data analysis and wrote two manuscripts concerning the determination of steady-state mefloquine levels in whole blood and serum obtained from Dutch Marines stationed in Cambodia.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to The Netherlands' s 5 neonatal screening laboratories located in Amsterdam, Zwolle, Tilburg, Capelle aan den Ijssel and Bilthoven. Data analyses were performed and reports were developed for these laboratories.

Occupational Hazards

EID staff are collaborating with the Health Council of the Netherlands in the evaluation of health data for chemicals found in the workplace. The goal of this collaboration is to facilitate the joint development of occupational hazard documents which can be used as the basis for establishing occupational health and safety recommendations within each country.

Occupational Health

The Director of NIOSH attended the 1997 meeting of the international group of directors of occupational safety and health research institutes, which was sponsored by NIA TNO (the Netherlands Institute for the Working Environment and the Division of Work and Health).

Rickettsial Disease

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases.

Toxicants (Organic)

NCEH scientists analyzed specimens for the measurement of dioxins and related compounds in the blood of chemical workers from The Netherlands. This study is designed to validate the exposure index derived by the International Agency for Research on Cancer in its attempt to correlate dioxin exposure and cancer. A manuscript that presents data showing that high occupational exposure to dioxins is associated with increased cancer mortality was accepted for publication.

NORWAY

Foodborne Diseases

NCID/DBMD hosted an epidemiologic fellow from Norway at the WHO Collaborating Center for Foodborne Disease Surveillance.

Meningitis

NCID/DBMD collaborated with the Norwegian Institute of Public Health on studies of their serogroup B meningococcal vaccine in Iceland, Chile, New Zealand, and the US. Funding from WHO allowed study of this vaccine given as an intranasal inoculation to infants in collaboration with the University of Washington. This route of vaccination may be more effective than parenteral vaccination and would reduce the number of parenteral injections needed in infancy.

Toxicants (Organic)

NCEH scientists participated in a study, funded by the Department of Defense and in collaboration with NIOSH, looking at the relationship in Norwegian women between serum levels of dioxins, furans, PCBs, and pesticides and breast cancer. The researchers reported 76 analytes (dioxins, furans, PCBs, and pesticides) in 300 case/control samples. Data is being analyzed by NIOSH.

Using the same Norwegian serum bank, a collaborative study with NCID was designed for studying the relationship between serum organochlorine pesticide and PCB levels and multiple cancers. Analyses of these 2000+ serum specimens will begin in 1998.

POLAND

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Department of Diagnostics - Collegium Medicum UJ, Kracow

National Institute of Cardiology Lipid Research Laboratory, Warsaw

Giardiasis/Cryptosporidiosis

NCID/DPD developed and presented two courses with in-country collaborators on PCR and genomic sequencing techniques and continued collaborative studies to isolate and identify strain differentiation.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead

Mine Studies

NIOSH has collaborated on studies of triggered barrier systems in mines that rapidly detect explosions, quickly disperse an inert material - water or chemical inhibitor - to form a cloud in advance of the explosion flame and rapidly suppress the explosion. Polish research has shown that triggered barriers can suppress dust explosions in multiple-entry configurations and that the NIOSH/USBM developed detector works well. Additional research on other dispersal systems is merited. The triggered barrier approach has direct application to protection of granaries against explosions.

The Central Mining Institute is currently testing mine seals that have built-in ventilation ducts and explosion-proof doors. A NIOSH researcher viewed the construction of a seal with a two-foot diameter ventilation duct. Discussions were held concerning the applicability and use of this technology in underground coal mines in the United States.
The Central Mining Institute expressed an interest in experimentally evaluating the digital version of the NIOSH rock dust meter. This instrument is based on the difference in optical reflectivities of coal and rock dust. The Central Mining Institute requested that NIOSH provide a rock dust meter and they will obtain the necessary permissibility approvals and will undertake a program of research/education to demonstrate the value and utility of the instrument.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, and phenylketonuria screening tests to Poland' s 11 neonatal screening laboratories located in Warsaw, Poznan, Luiblin, Gdansk, Krakow, Sczecin, Katowice, Tarnobrzeg, Kielce, Lodz and Dresden. Data analyses were performed and reports were developed for this laboratory.

Parasitic Diseases

NCID/DPD staff, with the Medical Academy of Poznan, collaborated in a project on clinical epidemiology of parasitic disease. The project is funded under the Marie Sklodowska-Curie Joint Fund (1993-1996) and focuses on 1) prevention of congenital toxoplasmosis, 2) diagnosis of toxocariasis, and 3) genetic characterization of strains of Echinococcus in Poland.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the cities of Krakow and Warsaw to provide a physical activity surveillance instrument, data collection, and data analysis.

Rock Mechanics

This NIOSH project focuses on mathematical modeling of crack development originating from the use of a cutting bit on a sold rock surface. Such modeling can increase the understanding of the phenomenon of rock failure and could lead to improved designs for reduced generation of respirable dust. It was decided to consider the submission of a joint proposal to the Polish State Committee for Scientific Research and the Maria Sklodowska-Curie Joint Fund II Program to pursue this research effort.

Tobacco Control

NCCDPHP/OSH provides ongoing technical assistance to Poland' s tobacco control efforts, and is preparing to participate in the 1998 "Health Development in Central and Eastern Europe After Transition Conference" in Warsaw, Poland.

PORTUGAL

Cardiovascular Disease: Cholesterol and Related Lipids

The Instituto Nacional De Saúde, Dr. Ricardo Jorge, Lisbon, Portugal, while receiving regular reports and communications from the CDC and CRMLN, has not been active in pursuing standardization of their Abell-Kendall method and is presumed to have dropped their participation. Inquiries were sent to this lab in 1997 to determine their status.

NCEH provided standardization support services to lipid research laboratories in the following institution:

Instituto Nacional de Saude, Lab Hematologia/Quimica Clinica, Lisbon.

Environmental Health

ATSDR staff attended a review of public health issues and responses to a proposal to build a municipal incinerator in Portugal. ATSDR assisted the Institute on Environment and Development, Porto, Portugal.

Lyme Disease

NCID/DVBID provided diagnostic reagents and reference service, and assisted with ecological studies on Lyme disease and other tick-borne diseases.

Neurotoxicology

Two senior NIOSH neurotoxicologists from the Health Effects Laboratory Division traveled to Portugal at the invitation of the University of Aveiro to begin the development of long-term extensive bilateral collaborations. These initial meetings with the President and senior scientists of the University of Aveiro concerned the necessary changes in infrastructure and manpower that will allow modernization of their medical and allied health sciences programs to better address emerging issues related to occupational safety and health. These efforts will include the identification of research efforts that will lead to the development of biomarkers of human exposure with an emphasis on markers of neurotoxicity.

Rickettsial Disease

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases**.**

ROMANIA

Arboviruses

NCID/DVBID staff investigated a large epidemic of West Nile fever in Bucharest and provided diagnostic assistance and/or reference services.

Hepatitis

NCID/DVRD conducted a two week consultation in Romania to evaluate the current hepatitis B vaccination program and provided recommendations regarding 1) the effectiveness of the program, 2) the ability of the Romanian National Immunization Program to sustain hepatitis B vaccination and other acute disease control programs, and 3) directions the Ministry of Health should take to improve the safety of injection practices to prevent transmission of bloodborne viral infections.

SERBIA

Health Assessment

NCEH/IERHP staff traveled to Serbia in October 1996 to assess health sector needs as part of a three person OFDA team.

SLOVAKIA

Toxicants (Organic)

A 3-year NCEH collaborative study funded by the United States Environmental Protection Agency to analyze blood in the general population for exposure assessment to dioxins and related compounds was continued. Involvement included preparing manuscript on the analyses of 37 blood specimens and two CDC scientists presenting lectures in the Slovak Republic. A one-year extension of this project was granted to analyze additional serum samples from workers in 1997-1998.

SLOVENIA

Hemorrhagic Fever Viruses

NCID/DVRD supports a Slovenian scientist in the serologic and genetic study of HFRS.

SPAIN

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Bacillus pumilis

NCID/HIP staff received two *Bacillus* spp. isolates from a hospital in Guadalajara, Spain, for identification. The isolates came from a father and son who both had cutaneous lesions suspicious of anthrax. However, isolates were identified by HIP as *B. pumilis* and confirmed by NCID/DBMD.

Brain Injury Prevention

A NCIPC scientist traveled to Seville, Spain to participate as a presenter on a panel entitled "Prevention and Injury Control" at the 2nd World Congress on Brain Injury, "Advances in Neurotrauma from Research to Community Living," May 10-14, 1997. This meeting was sponsored by the International Brain Injury Association (IBIA) and the Brain Injury Association of Spain (ADCE).

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Laboratorio de Salud Publica - Delegacion de Sanidad de Vizcaya, Bilbao

Laboratorio de Bioquimica - Hospital de Galdakao, Vizcaya

Bioquimica Clinical, Fundacion Jiminez Diaz, Madrid

Dengue

NCID/DVBID staff provided training to a visiting scientist on the dengue surveillance system and provided laboratory diagnostic services and reference services for suspected cases of dengue.

Environmental Health

NCEH staff conducted a sanitary inspection of a passenger cruise ship during its final construction phase in order to ensure that the vessel met standards for international safety and health of the passengers.

HIV

NCID/DASTLR staff hosted a Fellow from the Institute de Salud Carlos III for postdoctoral laboratory training in molecular biology and molecular epidemiology methods used in HIV and retrovirology research.

Meningitis

NCID/DBMD consulted with Spanish authorities to make decisions regarding use of serogroup C meningococcal vaccine to control increased rates of disease.

Mycotic Diseases

NCID/DBMD laboratory staff performed serodiagnostic tests to document histoplasmosis in Spanish patients who traveled to Guatemala.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Spain's two neonatal screening laboratories located in Madrid and Bilbo-Bilbao. Data analyses were performed and reports were developed for these laboratories.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the city of Catalonia to provide a physical activity surveillance instrument, data collection, and data analysis.

Respiratory Viruses

NCID/DVRD is continuing a collaboration with investigators from the Institute de Salud Carlos II, Madrid, Spain, to characterize adenovirus isolates from outbreaks of respiratory illness.

NCID/DVRD scientists are also assisting in studies of astrovirus disease and diagnosis.

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

Toxic Oil Syndrome (TOS)

In collaboration with the government of Spain, NCEH scientists continued their search for the etiologic agent involved in the Toxic Oil Syndrome oils. Staff completed the analyses of oils that were produced at Oregon State University in Corvallis, Oregon. It was found that two of the oils that were produced closely resembled the source contaminated oils that were produced by the ITH oil refinery in 1981.

A method was developed to selectively extract and measure the di-oleyl ester of PAP in case and control oils using liquid chromatography and a photodiode array detector. The government of Spain requested our assistance in the preparation of such a method to provide a less expensive alternative to mass spectrometric methods. Due to the age and complexity of the oil samples, this method was not successful. It was successfully employed, however, in the concentration of new components that were in such small concentrations they could not be measured using regular LC-MS/MS method in the past. Using this extraction and concentration method, and visual pattern recognition utilizing two-dimensional data display, staff have identified new structures in phenylaminopropanediol (DPAP and MPAP) that are the mono-acyl-bisanlinopropanols (MBAP) and di-acyl-bisanlinopropanols (DPAP). These compounds have been shown to be present in the ITH source contaminated oil and in the new "Toxic oils."

Using the new data gathered from the studies of the past year and previous years, scientists are developing a pattern recognition method with the input of Spanish collaborators to formalize the associations of these new compounds with case-associated oils. This analysis will be completed in 1998.

SWEDEN

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Biosafety

NCID/DVRD in conjunction with OHS consulted with the State Bacteriological Laboratory, Stockholm, regarding design and operation of proposed Biosafety Level-4 Laboratory.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratory in the following institution:

University of Uppsala Department of Geriatrics Research Laboratory Samariterhemmet, Uppsala.

HIV

NCID/DASTLR staff collaborated with Swedish investigators to initiate surveillance of xenotransplantation-associated retroviral infections among recipients of porcine pancreatic islet cells.

Lyme Disease

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Neonatal Screening: Birth Defects

A NCEH scientist was a member of the organizing committee for the meeting held in Stockholm, Sweden of the Task Force for Quantitation of Antigen Expression sponsored by the European Working Group on Clinical Cell Analysis.

Occupational Health

A NIOSH/DBBS researcher participated as an invited member of the international reference panel to advise the National Institute for Working Life of Sweden in matters related to the conduct and reporting of an epidemiological study of subjective symptoms associated with the use of mobile (cellular) phones in Sweden and Norway. The function of the reference panel was to review the experimental design and preliminary progress on the Swedish NIWL study and provide advice on how it should proceed. This activity will continue into FY98.

Another NIOSH/DBBS collaboration involves a research project studying intracellular calcium changes in a cultured cell line (Jurkat human lymphocyte cells) during exposure to a magnetic field. This project is part of the NIOSH interagency agreement with NIEHS, for which NIOSH operates a designated Regional Magnetic Field Exposure Facility as part of the national EMF program called the Research and Public Information Dissemination (RAPID) Program. NIEHS and the Department of Energy co-direct the RAPID Program, and NIOSH is a participating agency in that effort.

Occupational Injuries

NIOSH scientists provided technical assistance and consultation to, and negotiated collaborative research with, the WHO Collaborating Centre on Community Safety Promotion and Department Of Social Medicine, Karolinska Institute, on occupational injury surveillance, epidemiology, and prevention planning. They also discussed plans for a Problems with Cold Work symposium with Arbetlivsinstitutet (National Institute for Working Life).

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases**.**

SWITZERLAND

Arboviruses

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions: Covance CLS, Geneva

Child Survival

A NCID/CSA epidemiologist worked with staff from WHO' s Division of Child Health and Development to develop indicators for the evaluation of IMCI.

A NCID/CSA epidemiologist attended a Neonatal Tetanus Technical Consultation at WHO/Geneva and gave a presentation on measuring the proportion of newborns who are protected at birth by the tetanus toxoid doses their mothers received.

Contraceptive Guidelines

NCCDPHP/DRH participated in the International Medical Advisory Panel which helps establish medical guidance for the International Planned Parenthood Federation (IPPF) .

NCCDPHP/DRH served on the Steering Committee of the Task Force for Epidemiological Research and Methods for the Regulation of Male Fertility to evaluate research needs and priorities regarding the relationship of vasectomy to cancers of the testis and prostate.

Dengue

NCID/DVBID staff provided diagnostic services and reference services for suspected cases of dengue.

HIV/AIDS

A NCHSTP staff member met with UNAIDS officials to discuss HIV-subtypes and related research. There were also discussions with officials of UNAIDS and WHO on coordination and communications regarding International research activities.

Immunotoxicology

NIOSH/HELD staff presented a series of studies on the immunotoxicological assessment of the anti AIDS drug dideoxyinosine (ddI). The research reported was aimed at demonstrating the approach taken by the National Toxicology Program for determining if a drug/chemical injures or alters the structure or functioning of the immune system. In addition, the reported demonstrated an approach to determining the cellular site of action for ddI.

Malaria

NCID/DPD staff continued collaboration with the Office of the United National High Commissioner for Refugees on development of guidelines for malaria control in refugee and displaced populations.

Meningitis

NCID/DBMD stationed a 2nd year Epidemic Intelligence Service Officer at WHO in Geneva for 2 months to assist the Division of Emerging and Other Communicable Diseases (EMC) in coordination of operational research on meningococcal disease.

NCID/DBMD also developed and participated in the WHO International Coordinating group on vaccines for diseases of epidemic potential. This group worked to ensure sufficient stocks of meningococcal vaccine as well as its rational distribution and use.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, phenylketonuria, galactosemia, congenital adrenal hyperplasia, maple syrup urine disease and homocystinuria screening tests to Switzerland' s two neonatal screening

laboratories located in Zurich and Basil and the Kinderspital Zurich. Data analyses were performed and reports were developed for these laboratories.

Occupational Hazards

A NIOSH researcher attended the 13th Session of the Subcommittee of Experts on the Transport of Dangerous Goods in Geneva, Switzerland. The sessions attended centered on the matter of UN Class 1 (Explosives) and the global harmonization of systems of classification and labeling of chemicals. This meeting was important to ongoing safety research at NIOSH in that it provided an opportunity to present experimental results germane to the safety of explosives and blasting agents used in mining.

Occupational Health

NIOSH/DRDS conducted an international film reading trial to assess the usefulness of sectional quadrant standard films, in collaboration with the International Labour Office in Geneva and physician readers from allover the world. The final report was sent to the ILO in Geneva and other national and international partners.

The Director of DRDS was invited by the ILO to serve as an expert in the Secretariat for their Tripartite Meeting of Experts on Workers' Health Surveillance. As an ILO invited expert, he provided advice to the Secretariat on technical matters and provided information and explanations at the request of the members of the Meeting.

Surveillance

NCCDPHP/DACH continued to provide consultation to Bern for carrying out a lifestyle and health BRFSS survey.

Vector Research

NCID/DPD, in collaboration with DoD entomologists, have scheduled the field evaluation of a rapid (5 minute) wick assay for identification of malaria vectors.

Violence

A NCIPC violence expert traveled to Geneva, Switzerland to attend a technical briefing of the World Health Assembly on "Violence: A Public Health Priority for WHO" by the WHO Task Force on Violence and Health. He also traveled to Geneva to attend a WHO Global Consultation on Violence and Health in December, 1997.

Yellow Fever

NCID/DVBID staff provided diagnostic assistance and/or reference services.

TURKEY

Rabies

NCID/DVRD provided reagents to researchers at the University of Ankara for molecular typing of rabies variants.

Rickettsial Diseases

NCID/DVRD provided rickettsial diagnostic reagents for the confirmation of rickettsial diseases.

UNITED KINGDOM

Cancer

NCCDPHP/DCPC provided support to the Imperial Cancer Research Fund (ICRF) for an add-on psychosocial research component to a multi-year, randomized controlled trial of the efficacy of flexible sigmoidoscopy (FS) screening for colorectal cancer. The study will evaluate the demographic, environmental, and psychosocial factors which predict interest in and attendance at colorectal cancer screening in order to identify barriers associated with low compliance. Despite increasing evidence that the early diagnosis of colorectal cancer through screening examination can significantly prevent or reduce the burden of mortality, morbidity, and associated costs, rates of participation in screening remain extremely poor.

Cardiovascular Disease: Cholesterol and Related Lipids

Institute of Biochemistry, Royal Infirmary, Glasgow, United Kingdom: The Institute of Biochemistry serves as the reference center for lipid disorders in Scotland and as a service laboratory for the Infirmary and surrounding physicians. CRMLN activities include promotion of standardization efforts, providing sera with assigned values for calibration, and providing reference values for materials used in several national QC and standardization schemes. These schemes include the UK-wide National Initiative for Cholesterol Accuracy, Measurement, and Standardization (NICAMS); WEQAS (a Welsh external quality control scheme); NOKLUS (a Norwegian QA scheme); and a pilot QA scheme in Greece.

This laboratory also serves as the accuracy base for major epidemiological studies. In addition, three clinical laboratories were certified for TC through the CRMLN clinical laboratory program. The Institute of Biochemistry has also worked with one manufacturer to evaluate their IDMS method for TC.

NCEH provided standardization support services to lipid research laboratory in the following institutions:

Cardiovascular Epidemiology Unit - University of Dundee, Dundee

Royal Infirmary, Institute of Biochemistry, Lipoprotein Laboratory, Glasgow

Lipoprotein Research Laboratory Department of Medicine - Manchester Royal Infirmary, Manchester

Dengue

NCID/DVBID staff provided training to five Scottish visiting scientists on the biology and control of *Aedes aegypti*.

Diarrheal Diseases

NCID/DVRD helped develop a rotavirus surveillance program in Europe.

Distance Learning

PHPPO staff have discussed plans for collaboration on distance-based learning in public health for England including developing courses related to public health management, infection, and epidemiology.

EPO began collaboration with London University to create a distance-based learning MPH-degree program for health officials in countries that cannot send them away for graduate training.

Environmental Health

A NCEH staff member met with Health Department staff to discuss collaboration with CDC's Vessel Sanitation Programs in order to conduct inspections on ships docking in Canadian ports.

Health Assessment

A representative of the United Kingdom is serving with the international working group, coordinated by NCEH/EHLS, for the development of recommendations for studying biomarkers of renal damage from nephrotoxic substances in clinical models.

A representative of the United Kingdom is serving as European Coordinator for the second Joint EU/US Workshop: Urinary Biomarkers to Detect Significant Effects of Environmental and Occupational Exposure to Nephrotoxins to be held in June of 1998. This workshop will focus on the appropriate use of biomarkers in the study of the effects of toxicants on children, the latest

developments in the study of genetic risk factors for renal disease, the impact of comorbidities and environmental risk factors on the development of renal disease, and the results of recent studies using biomarkers to detect and define the effects of various toxic exposures.

Leptospirosis

A NCID/DBMD staff member represented NCID as a member of the first CDC/Public Health Laboratory Service (PHLS) staff exchange program. The staff member spent three weeks working with PHLS personnel and provided consultation services for the identification of unusual clinical isolates and leptospirosis.

Malaria Control

NCID/DPD collaborated with investigators at the Liverpool School of Tropical Medicine on the development of a PCR-based diagnostic assay for identifying a new member species in the *Anopheles gambiae* complex.

NCID/DPD collaborated with investigators at the University of Dundee on molecular approaches to cloning inversion breakpoints from the mosquito *Anopheles gambiae*.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Micronutrient Malnutrition

NCEH provided consultation to the U.K. Department of Health for evaluating laboratory performance from the Pre-School Children' s Subset of the U.K. National Diet and Nutrition Survey, and to ensure that results can be compared with those from U.S. surveys such as NHANES III. NCEH participated in, and joined the advisory committee of a U.K. inter-laboratory comparison program for vitamin D to ensure the accuracy basis for serum vitamin D measurements.

Mycotic Diseases

NCID/DBMD provided reference sera for quality assurance tests to the U.K. Reference Laboratory in Leeds as part of an exchange of proficiency testing specimens.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, and phenylketonuria screening tests to United Kingdom' s five neonatal screening laboratories located

in Birmingham (2), London, Dundee, and Peterborough. Data analyses were performed and reports were developed for these laboratories.

NCEH conducted performance evaluations for HIV antibody testing on dried-blood spots in Glasgow, London, and Colindale. Quality control material have been validated and distributed to assist in determination of seroprevalence among child-bearing women.

Neural Tube Defects

A NCEH scientist gave seminars at Cambridge University and the National Institute of Biologics, Standards, and Control (NIBSC) in Potters Bar on inter-laboratory variation for folate as demonstrated in an international round robin, and discussed the need for additional reference methods and materials in nutritional biochemistry. At Oxford University, a seminar was presented on preliminary results from NHANES III, in addition to consultation on long-term storage of biological specimens for micronutrient analysis.

Occupational Exposure

A NIOSH/DBBS scientist attended the European Commission Concerted Action 2nd Conference on Protection Against Noise and presented a paper and a poster titled "EARTALK - Hearing Protector/Communication System". The conference provided a great opportunity to communicate research activities between NIOSH and the European community as well as to learn of the various research efforts carried out in Europe.

Occupational Health

A scientist from the University of London, Kings College London, United Kingdom visited NIOSH Morgantown and participated in collaborative studies on free radicals and carcinogenesis. He interacted with several members of NIOSH research team in discussion and implementation of innovative studies. He is also involved in peer review of manuscripts and project planning discussions.

In 1997, CDC/NIOSH began a cooperative research agreement with the Institute for Occupational Medicine, Edinburgh, Scotland, United Kingdom. The purpose of this agreement is to develop a biologically based mathematical model to describe the long-term retention of respirable particles in the lungs of coal miners. This model may be useful in assessing human health risk from long-term exposures to respirable particles of low solubility and low inherent toxicity in addition to coal dust.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the cities of Glasgow to provide a physical activity surveillance instrument, data collection, and data analysis.

Plague

NCID/DVBID staff provided consultation for the diagnosis of plague cultures at Porton Down.

Porcine Parvovirus

NCID/DVRD is continuing a collaboration with the FDA, USDA-NADC, Speywood Biopharm, Ltd., U.K. and DASTLR/NCID to investigate porcine parvovirus (PPV) contamination of porcine factor VIII concentrate. Efforts include the development of a polymerase chain reaction (PCR) assay to identify PPV DNA in contaminated lots of concentrate and to look for serologic evidence of PPV infection in concentrate recipients.

Quality Assurance

NIOSH/DPSE research chemists visited the United Kingdom Health and Safety Executive (HSE) in Sheffield, UK to discuss collaboration in proficiency testing and related analytical research. The U.S. Proficiency Analytical Testing (PAT) Program and the U.K. Workplace Analysis Scheme for Proficiency (WASP) are the two largest industrial hygiene laboratory proficiency testing programs. Five analytical areas for PAT/WASP proficiency testing cooperation and related HSE/NIOSH analytical research cooperation on workplace air monitoring were agreed upon.

Rabies

NCID/DVRD provided reagents to researchers at the University of Glascow Veterinary School, Scotland specific for rabies glycoprotein.

Rickettsial Diseases

NCID/DVRD provided laboratory testing for the confirmation of suspected rickettsial diseases in Scotland.

Salmonella

NCID/DBMD staff coauthored and published in the British Medical Journal an article describing an investigation of an international outbreak of *Salmonella agona* associated with consumption of a peanut-based snack produced in Israel, causing illness in Britain and the United States.

Syphilis

NCID/DASTLR staff provided instructions for reagent preparation to investigators in England.

Toxic Shock Syndrome

NCID/DBMD staff member presented data from U.S. surveillance for Toxic Shock Syndrome (TSS) at the European Conference on Toxic Shock Syndrome in London.

Toxicants (Organic)

NCEH scientists collaborated on studies of the impact of PCB exposure on the intelligence of children in the Seychelles Islands. The main focus of these studies has been mercury exposures, but PCBs were also examined in 44 individual children. The levels of PCBs were quite low compared to populations in western countries.

The Middle East

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BAHRAIN

Meningitis

NCID/DBMD collaborated with the Bahrain Ministry of Health and Expanded Program of Immunization (EPI) and Children's Vaccine Initiative (CVI) at WHO Headquarters, to evaluate surveillance and lab capacity for bacterial meningitis in Bahrain. This evaluation was done to assist the Ministry in making a decision about integration of new conjugate Hib vaccines into routine childhood vaccination programs and to develop a stronger foundation for earlier detection of epidemic meningococcal disease.

EGYPT

Arboviruses

NCID/DVBID provided diagnostic reagents and/or reference services.

Field Epidemiology Training Program

EPO/FETP staff collaborated with NCEH on activities related to public health problem of lead-tainted flour. Mills were visited and inspected in the vicinity of Cairo to determine the extent of the problem and possible solutions to the lead contamination problem. Staff developed and implemented a contract for the analysis of flour samples in a U.S. reference laboratory. EPO also coordinated a short-term consultancy to upgrade technical (computer-based) capacity in the Egyptian FETP and procured new computer hardware to support this upgrade.

Haemophilus influenzae

NCID/DBMD assessed the need for *Haemophilus influenzae* type b vaccination program.

Health Statistics

NCHS provided guidance, counseling, and mentoring in both the technical aspects of the health data system and the management of organizations that provide these services within the Ministry of Health of Egypt. NCHS has been assisting the Ministry of Health in Egypt for more than 20 years. The Disease Prevention and Health Promotion Priorities for Egypt (DPHPPE) project is the fourth in a series of projects, and it will take advantage of the experience and product from past projects to assist the Ministry in its efforts to use data for decision-making and to do strategic planning. The Ministry of Health has identified three areas in which they want to concentrate their objective setting process: primary care (focused on women's health), environmental health, and injury control.

Meningitis

NCID/DBMD collaborated with EMRO/WHO, the Egyptian Ministry of Health and the Navy Medical Research Unit-3 (NAMRU-3) to evaluate surveillance and laboratory capabilities for bacterial meningitis in Alexandria and Cairo and to do studies of burden of disease and meningococcal vaccine efficacy. These efforts will help the Ministry of Health make decisions about routine use of *H. influenzae* type b vaccines and provide regionally important information concerning the effectiveness of their routine use of meningococcal polysaccharide vaccine in control of endemic meningococcal disease.

Metal Exposure (Lead)

NCEH continued to provide training to Egyptian scientists in blood lead analysis. They also analyzed blood lead specimens from follow-up studies in areas of Upper Egypt and Cairo known to have lead poisoning problems. The extremely elevated blood lead results found from these surveys will undoubtedly help to increase the scope of current lead poisoning prevention programs in Egypt. NCEH staff continue to review analytical and QC data for this project and with the FETP to expand laboratory capability in Egypt.

NCEH scientists attended the Middle East Regional Commission meeting in Cairo and presented seminars on blood lead analysis and overall quality assurance. As part of a project jointly sponsored by USAID and CDC, scientists from Israel, Jordan, and Palestinian Gaza Strip and West Bank, are collaborating on childhood lead poisoning prevention activities in the Middle East. The scientists are currently planning to implement a blood lead survey to determine the extent of childhood lead poisoning in urban areas.

NCEH provided laboratories with whole blood materials with certified target values for lead.

Public Health Training

A NCIPC researcher traveled to Egypt on in March, 1997 to teach a course in applied public health in collaboration with EPO.

Schistosomiasis

NCID/DPD continued to provide scientific support and training for the Egyptian Reference and Diagnostic Center (E-RDC). The E-RDC continues to play a central role in the WHO Schistosomiasis vaccine trials. In addition, the E-RDC is developing a field-applicable dipstick assay for the detection of *Schistosoma* antibodies and is collaborating on a project that is examining the immune response of children of mothers infected with *Schistosoma mansoni* to the immune response of children of mothers who were uninfected.

ISRAEL

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Hadassah Hospital Ein Kerem - Kiriat Hadassah, Jerusalem

Institute of Physiological Hygiene - Tel-Aviv University, Holon

Lipid Research Institute of Lipid & Athero Research - Sheba Medical Center, Tel Hashomer

Dengue

NCID/DVBID staff provided laboratory diagnostic reagents and diagnostic and reference services for suspected cases of dengue.

Hepatitis

NCID/DVRD collaborated with scientists from Hadassah Medical Organization, Jerusalem, to characterize hepatitis A virus sequences present in patients that required bone marrow transplant for hepatitis-associated aplastic anemia.

Measles

NCID/DVRD provided immunohistochemical testing and pathology consultation on a measles case.

Metal Exposure (Lead)

NCEH provided laboratories with whole blood materials with certified target values for lead.

Physical Fitness

NCCDPHP/DNPA' s MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in Israel to provide a physical activity surveillance instrument, data collection, and data analysis.

Rickettsial Diseases

NCID/DVRD provided laboratory testing and diagnostic reagents for the confirmation of suspected rickettsial diseases. DVRD also consulted on rabies diagnostic and prevention issues.

JORDAN

E. coli

NCID/DBMD, in collaboration with Yarmouk University (Irbid, Jordan), used multiplex PCR assays to identify diarrheagenic *E. coli* isolates from stools of malnourished children with and without diarrhea.

Plague

NCID/DVBID provided consultation and diagnostic service to identify the camel-related plague outbreak in Azraq and reagents and reference services during camel-related plague outbreaks in Azraq.

KUWAIT

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Dengue

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Micronutrient Malnutrition

NCCDPHP/DNPA assisted the Kuwait Ministry of Health (MOH) in developing an action plan to address iron deficiency to include: conducting a situation analysis for iron deficiency based on available and/or new data; developing a national strategy for the prevention and control of iron deficiency; and submitting an Executive Action Document and Assignment Report. DNPA reviewed a number of official documents and scientific publications regarding the iron status of the Kuwait population and conducted a rapid convenience survey of anemia among children, women, and men attending health care facilities. They also trained technicians in the Nutrition Department of the Kuwait MOH and developed a written plan of action and specific recommendations for preventing and controlling iron deficiency in Kuwait.

LEBANON

Emerging Infectious Diseases

NCID/DVRD participated in the International Academy of Pathology, Arab Division conference and provided information on emerging infectious diseases and molecular diagnostic tools in the diagnosis of infectious agents.

OMAN

Crimean-Congo Hemorrhagic Fever

NCID/DVRD conducted an integrated epidemiologic and ecological investigation of a large cluster of Crimean-Congo hemorrhagic fever in conjunction with local and national public health authorities.

Micronutrient Malnutrition

NCEH scientists provided consultation on study design, specimen analysis, and review of analytical data for a study of fat-soluble vitamin deficiency in Oman.

QATAR

Haemophilus influenzae

NCID/DBMD conducted an assessment of need for a *Haemophilus influenzae* type b vaccination program.

SAUDI ARABIA

Arboviruses

NCID/DVBID staff provided diagnostic reagents and/or reference services.

Field Epidemiology Training Program

EPO staff developed and delivered a 1-week course entitled "Effective Oral Presentations for Public Health Professionals" to Saudi Arabian FETP participants and alumni in June, 1997. An FETP alumnus has been named to the general directorate of health affairs for the Riyadh region. For the first time, the FETP has ready access to data from its disease surveillance system. In recent months, FETP analysts have used the surveillance system to detect five outbreaks of disease (measles, hepatitis A, amebiasis, brucellosis, hepatitis B), of which three required investigation.

Other investigations and studies done by FETP staff/participants in recent months include a study of vaccination coverage during national immunization days, an outbreak of measles and rubella among security forces cadets, salmonellosis associated with eating in a restaurant during the hajj, a behavioral risk factor survey among pilgrims to the 1997 hajj, a study of risk factors for low birth weight in Riyadh City, an investigation of hepatitis A infection from contaminated well water, a survey of meningococcal vaccination coverage associated with the hajj, a study of tobacco use among secondary school students in Riyadh, an assessment of reporting patterns for tuberculosis, and an assessment of the screening program for incoming foreign workers.

Staff also conducted a "Principles of Epidemiology" course for incoming participants of the FETP. The course has been revised recently to allow selected medical professionals in Saudi Arabia to join the FETP participants for the initial sections of this training module.

Laboratory Diagnostics

NCID/DVRD laboratories have continued to provide laboratory diagnostic assistance and advice to the Ministries of Health and Agriculture of Saudi Arabia.

SYRIA

Haemophilus influenzae

NCID/DBMD conducted an assessment of need for a *Haemophilus influenzae* type b vaccination program.

UNITED ARAB EMIRATES

Crimean-Congo Hemorrhagic Fever

NCID/DVRD continued diagnostic support for CCHF as a continuation of the investigation last year.

YEMEN

Dracunculiasis

NCID/DPD staff assisted the Yemen Guinea Worm Eradication Program to intensify case containment implementation and participated in the review of Guinea worm eradication programs in English speaking countries, which was held in Sanaa.

New Independent States

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ESTONIA

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for thyroid hormone, congenital hypothyroidism, and phenylketonuria screening tests to Estonia' s neonatal screening laboratory located in Tartu. Data analyses were performed and reports were developed for this laboratory.

KAZAKHSTAN

Acute Respiratory Infections

EPO scientists conducted a review of current policies and programs associated with childhood diarrheal diseases (CDDs) and acute respiratory infections (ARIs) in three republics (Kazakhstan, Kyrgyzstan, and Uzbekistan). These activities provided material needed by the BASICS program to develop training modules that cover CDDs and ARIs. EPO staff members developed specific content recommendations for inclusion in revised administrative directives ("prikazi") with respect to diagnosis of the treatment for ARIs and CDDs, and gave those recommendations to Ministries of Health in the three participating republics (Kazakhstan, Kyrgyzstan, Uzbekistan).

EPO staff also conducted a workshop on the implementation of CDD/ARI programs in Central Asia in Almaty, Kazakhstan. The workshop included the following components: a) review of the differences between the WHO recommendations on CDD/ARI in the three participating republics; b) review of the strategic approach to the control of diarrheal disease and acute respiratory infections in the three republics, on the basis of the outline in the *Health Facility Assessment* publication; and c) development of recommendations for improving program effectiveness.

Antibiotic Resistance

In Osh, Kyrgyzstan, and in Zhambyl, Kazakhstan, EPO researchers conducted studies to determine levels and patterns of resistance of *Haemophilus influenzae* and *Stapholococcus pneumoniae* in Kyrgyzstan and Uzbekistan and in Kazakhstan, respectively, to commonly used antibiotics (penicillin, ampicillin, trimethoprim-sulfamethoxazole, and chloramphenicol). The results of the study are being used to help guide the choice of the nationally recommended antibiotic for treating children with pneumonia in these republics**.**

Diarrheal Diseases

EPO scientists conducted a study in Kazakhstan of the cost of running an Acute Diarrheal Training Unit in Zhambyl oblast.

Hepatitis

NCID/DVRD and EPO conducted a four day workshop on the Prevention and Control of Viral Hepatitis in Kazakstan, which was attended by about 120 persons, including clinicians and local public health department personnel. The workshop introduced attendees to new MOH recommendations for prevention and control of viral hepatitis that were developed in collaboration with CDC.

NCID/DVRD and EPO worked with the Kazakhstan Ministry of Health to revise guides for the clinical management of patients with viral hepatitis. As a direct result of the workshop, the Ministry of Health created a decree ("prikaz"), which states a) that there will no longer be mandatory hospitalization of patients with hepatitis A; b) that Kazakhstan will begin to implement a universal vaccination program (for newborns) against hepatitis B (using national funds); and c) that they will cease terminal disinfection on the "soft goods" (mattresses, etc.) of patients who have viral hepatitis.

Laboratory Training

At CDC, Atlanta, staff microbiologists gave laboratory staff from Kazakhstan additional training in the area of isolation and culture of respiratory-tract pathogens.

Surveillance

EPO researchers initiated a childhood mortality study in Zhambyl Oblast, Kazakhstan. The project concerns all children who died from September 1996 through October 1997. Data are still being gathered and analyzed to determine risk factors and circumstances attendant to deaths of children.
EPO also initiated a Mortality Surveillance and Death Certificate Validation Study in Zhambyl Oblast.

Tuberculosis

EPO and other CDC staff conducted a 4-day workshop for staff from all Oblasts of Kazakhstan on the prevention, diagnosis, treatment, and control of tuberculosis. As a direct result of this workshop, the Ministry of Health created an administrative directive ("prikaz"), which stated a) that there will be a commitment at the national level to implement the WHO-recommended tuberculosis control strategy (directly observed therapy, or DOT, programs); b) that Kazakhstan will reduce the BCG vaccination schedule to omit two of the three current re-vaccinations, and that the republic will use the monies saved by implementing this policy change to establish DOT programs; and c) that Kazakhstan will limit annual Mantoux testing of all children ages 1 to 12 years, as currently practiced, to those age 6 years (school entrance age) and to those children who are members of high-risk groups. It was agreed that the republic will also use the monies saved by this policy change to establish DOT programs.

EPO staff help to develop a Central Asian Tuberculosis Project Work Plan in conjunction with Project HOPE and Abt Associates. The goals of this project are to achieve the following within 2 years after initial implementation of project components: a) reduce morbidity and mortality associated with tuberculosis, b) develop sustainable national capacity to reduce morbidity and mortality associated with tuberculosis, and c) to reduce the cost of tuberculosis control.

EPO designed an evaluation of the relative cost-effectiveness of the current practice for treating persons with tuberculosis relative to the costs associated with DOT. This work will be carried out in Almaty, Kazakhstan.

KYRGYZSTAN

Acute Respiratory Infections

EPO staff members conducted a review of current policies and programs associated with childhood diarrheal diseases (CDDs) and acute respiratory infections (ARIs) in three republics (Kazakhstan, Kyrgyzstan, and Uzbekistan). These activities provided material needed by the BASICS program to develop training modules that cover CDDs and ARIs. EPO staff developed specific content recommendations for inclusion in revised administrative directives ("prikazi") with respect to diagnosis of the treatment for ARIs and CDDs, and gave those recommendations to Ministries of Health in the three participating republics (Kazakhstan, Kyrgyzstan, Uzbekistan).

Antibiotic Resistance

In Osh, Kyrgyzstan, and in Zhambyl, Kazakhstan, EPO researchers conducted studies to determine levels and patterns of resistance of *Haemophilus influenzae* and *Stapholococcus pneumoniae* in Kyrgyzstan and Uzbekistan and in Kazakhstan, respectively, to commonly used antibiotics (penicillin, ampicillin, trimethoprim-sulfamethoxazole, and chloramphenicol). The results of the study are being used to help guide the choice of the nationally recommended antibiotic for treating children with pneumonia in these republics**.**

Laboratory Training

In Osh, Kyrgyzstan, CDC microbiologists and epidemiologists taught laboratory staff from Kyrgyzstan and Kazakhstan how to isolate *Haemophilus influenzae* and *Stapholococcus pneumoniae*.

Tuberculosis

EPO staff conducted an economic evaluation of the WHO-sponsored tuberculosis-control program in Kyrgyzstan.

LATVIA

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism screening test to Latvia' s neonatal screening laboratory located in Riga. Data analyses were performed and reports were developed for this laboratory.

LITHUANIA

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism screening test to Lithuania's neonatal screening laboratory located in Vilnius. Data analyses were performed and reports were developed for this laboratory.

MOLDOVA

Health Communications

EPO received a request for training of Ministry of Health staff in publications management from the Moldova Deputy Minister of Health. The request has been referred to USAID for review and approval. If possible, two Moldova MOH staff will join a training course planned for Ukrainian public health staff in February-March 1998.

Hepatitis

NCID/DVRD continued analysis of data from a case-control study of acute hepatitis B and a survey of hepatitis B in pregnant women and schoolchildren conducted in collaboration with the Moldova Ministry of Health.

Reproductive Health Surveys

NCCDPHP/DRH provided programming, on-site staff training, and data entry hardware and software support for reproductive health survey questionnaires.

RUSSIA

Arboviruses

NCID/DVBID staff provided diagnostic assistance and/or reference services.

Cardiovascular Disease

NCCDPHP/DNPA is involved in an effort to develop, test, and implement prevention strategies with an emphasis on policy and environmental approaches. This has included: 1) publication of, "Towards a Healthy Russia, Policies and Strategies for the Prevention of Cardiovascular and other Noncommunicable Diseases Within the Context of Public Health Reforms in Russia", 2) endorsement of this policy framework at a Russian health policy conference, and 3) seven sub-studies on current regulations and practices, prevalence of risk factors, attitudes about prevention measures, and level of public and government support for disease prevention and health promotion.

Cardiovascular Disease: Cholesterol and Related Lipids

NCEH provided standardization support services to lipid research laboratories in the following institutions:

Department of Biochemistry - Institute of Experimental Medicine, Leningrad

Department of Biochemical Standardization - National Research Center for Preventive Medicine, Moscow

Disaster Preparedness

NCEH staff met with the Russian Ministry of Defense to discuss the objectives of the protocol, "Medical examination to determine public health in the Shchuch' ye Area, Kurgan Region in support of the public hearings on the destruction of chemical weapons." Recommendations were to supplement the survey with biological and environmental sampling if associations are to be made with health and exposure, and to select a sample representative of the population if the objective of the survey is to establish a baseline of the entire population.

Environmental Health

In response to a request to NCEH for cooperation on pesticides within the framework of the Gore-Chernomyrdin Commission, a conference on "Pesticides and Health of the Population" was held at Sochi, Russia, May 27-29. Having established that pesticides were necessary if the black earth region was to continue to serve as the breadbasket of Russia, the participants focused on how best to protect the health of the general population, agricultural workers, and the environment. Three priority areas of cooperation were identified: harmonization of registration and regulation; safe storage and disposal; and monitoring of health effects, epidemiological research, and development of prevention programs.

Hantavirus

NCID/DVRD hosted one Russian scientist who worked on various molecular and diagnostic hantavirus projects. The National Academic Science Program sponsored a collaborative study with Vector Lab in Novosibirsk, Russia.

Health Communications

In 1997, EPO provided a short-term consultancy to work with publications management staff in the Russian Republic Information and Analytic Center, Moscow, to initiate cost-accounting technology and to do long-term planning for communications strategies. EPO staff also met with Ministry of Health staff and recommended creation of an editorial board for the Russian Health Bulletin, a monthly publication that CDC staff assisted in creating and institutionalizing in 1993.

Health Information Systems – Vital Statistics

NCHS and MedSocEconInform, the statistical agency of the Russian Ministry of Health, collaborated in the preparation of a joint publication on vital and health statistics in the two

countries, which was released in June 1995. The publication covered selected years of data for the interval 1980-93. MedSocEconInform and others prepared a Russian translation of this report, which was released in December 1995. Analysts from NCHS and MedSocEconInform will update this publication every 3-4 years. In addition, the two organizations will prepare reports on special health topics. NCHS and the Russian Ministry of Health are also collaborating on the revision of Russian birth and death certificates, and the introduction of the Tenth Revision of the International Classification of Diseases for mortality coding in Russia.

Health Promotion

NCCDPHP/DASH provided leadership for the Health Education and Health Promotion Priority Area of GCC. DASH worked with the Russian Federal Research Institute for Health Education and Promotion (RFRIHEP) and other agencies to modify the U.S. Youth Risk Behavior Survey (YRBS). The modified survey will identify and monitor critical health behaviors among Russian youth. In the fall of 1997, RFRIHEP will implement a pilot Russian YRBS among a probability sample representative of 8th through 11th grade students in the Moscow Oblast (excluding the city of Moscow).

Hepatitis

NCID/DVRD is a U.S. partner for a National Academy of Sciences grant to State Research Center of Virology and Biotechnology to determine hepatitis C virus genotypes in Siberia.

Influenza

NCID/DVRD has entered into an agreement with the D.I. Ivanovsky Institute of Virology, Moscow, Russia, and the Institute of Influenza, St. Petersburg, Russia, to expand international influenza laboratory surveillance. As part of the agreement, DVRD has provided short term training for two scientists from these Russian Institutes.

Liver Flukes

NCID/DPD has entered into an agreement with the National Academy of Sciences and the VECTOR laboratory, Novosibirsk, to develop a liver fluke diagnostic test.

Metal Exposure (Lead)

NCEH conducted pediatric blood lead investigations in collaboration with local authorities at 3 different locations in Russia (Volgograd, Yekaterinberg, and Krasnouralsk). Three NCEH laboratorians provided training in specimen collection and analysis for blood lead and hemoglobin as part of this study of pediatric lead poisoning and anemia and introduced new technology for blood lead measurement in these studies. They also are developing comparison studies of the new technology and establishing atomic spectroscopy analytical procedures. Follow-up meetings with several ministries were held in Moscow to discuss data from previous childhood lead poisoning studies in Moscow and Saratov.

The US-Russian joint lead poisoning investigation in Volgograd was conducted during October, 1997. The investigation was supported by CDC and EPA, with logistical assistance from local authorities. Approximately 700 finger stick blood samples of Russian children living in Volgograd were collected and environmental sampling was done at their schools and at a subset of homes. EPA collaborated on the environmental air sampling. Preliminary results of environmental analysis showed high lead concentrations in a few paint, dust, and soil samples. The researchers expect to receive air monitoring filters from locations in Volgograd for analysis.

In Ekaterinburg/Krasnouralsk, 900 children were tested, along with homes and kindergartens. All blood and questionnaire data were entered into Epi-Info and preliminary descriptive analysis was done. The local public health officials organized a seminar on the day prior to our departure, in which NCEH staff presented background information on the lead problem in the United States and on U.S. treatment guidelines for lead poisoning. Preliminary results of the blood lead and hemoglobin testing were provided.

NCEH provided a number of Russian laboratories with whole blood materials with certified target values for lead.

Micronutrient Malnutrition

As a result of efforts by NCEH scientists, a meeting of over 70 nutrition scientists and health policy makers supporting the elimination of micronutrient malnutrition in Russia was convened at HHS headquarters February 3 & 4, 1997, in preparation for a meeting of the Health Committee of the Gore-Chernomyrdin Commission. This meeting resulted in a "Joint Statement on the Problem of Micronutrient Malnutrition" signed by Secretary Shalala and Russian Minister of Health Dmitrieva on February 5, 1997.

Following this historic event, NCEH scientists were invited by the Russian Ministry of Health to participate in the International Conference on "Health Nutrition Policies in Russia" & a Micronutrient Malnutrition Workshop and to a follow-up meeting with several Russian ministries, held in Moscow, Russia in April 1997. At a workshop on this same topic in June 1997, HHS and Russian participants developed strategies and initiated collaborative activities to work towards the elimination of Micronutrient Malnutrition in Russia (fluoride, iron, iodine, and selenium deficiencies). This effort was continued by a NCEH scientist at the Regional Conference on Elimination of Iodine Deficiency Disorders (IDD) in Central & Eastern Europe, the Commonwealth of Independent States, and the Baltic States held in Munich, Germany in September 1997, where the role of IDD in the development of thyroid cancers in persons exposed to radioactive iodine near Chernobyl was considered.

A November 1997 regional workshop in Moscow entitled "Iodized Salt Production: Problems and Solutions", jointly sponsored by GCC micronutrient partners, was attended by representatives of NCEH and FDA and focused on identifying constraints in the implementation of national IDD programs and of devising ways and means of overcoming these obstacles. Activities in 1998 will include further refinement of action plans for each micronutrient and a U.S. Information Service (USIS) Micronutrient Malnutrition Study Tour in March 1998 involving 12 Russian Scientists.

NCCDPHP/DNPA also met with Russian officials, international health agencies, and industry leaders to develop preliminary plans of action to address iron, selenium, flouride, and iodine

deficiency in the Russian Federation. DNPA will serve as CDC coordinator for iron deficiency activities under the Gore-Chernomyrdin Commission (GCC).

Monkeypox Virus

NCID/DVRD has entered into an agreement with the National Academy of Sciences and the VECTOR laboratory, Novosibirsk, to perform genome analysis.

Neonatal Screening: Birth Defects

As part of an international quality assurance program, CBB personnel provided dried-blood-spot quality control and performance evaluation materials for congenital hypothyroidism, and phenylketonuria screening tests to Russia's two neonatal screening laboratories located in Moscow and Ekateriaburg. Data analyses were performed and reports were developed for these laboratories.

A scientist from the International Council for Control of Iodine Deficiency Disorders visited NCEH for advice on measurement details for hypothyroidism detection.

A NIOSH scientist, in collaboration with two scientists from the Ministry of Health, Russia, worked on a grant from ISTC to develop Luminescent Immunoassay Methods and Diagnostic Means for Congenital Disorders Screening of Newborns.

Nosocomial Infections

NCID/HIP participated in a one-week course on infection control and nosocomial infection surveillance conducted in St. Petersburg.

Occupational Health

In support of the NIOSH/FIOH Cooperative Agreement, "Health and Exposure Surveillance of Ural Regional Asbestos Miners and Millers," NIOSH collaborated with Russian and Finnish scientists to publish results from air sampling performed at Siberian asbestos mines and mills. Russian scientists reported on traditional gravimetric sampling technique while Finnish and US scientists reported on a fiber count measurements. Sampling results for each technique were correlated. Radiographic findings from the study were reviewed by the three collaborating centers.

Physical Fitness

NCCDPHP/DNPA's MOSPA Data Management Center continued to collaborate with staff of the MOSPA data management sites in the city of Novosibirsk to provide a physical activity surveillance instrument, data collection, and data analysis.

Public Health Practice

In 1997 EPO staff conducted a field evaluation of public health practice among central, oblast, and raion-level epidemiologists following their participation in applied epidemiology courses that EPO/DIH staff had conducted in Moscow and Perm oblasts in 1996.

Radiation

NIOSH/DSHEFS has supported a grant to study 59 cases of Acute Radiation Syndrome (ARS) in workers from the Mayak nuclear facilities in Russia. This study, conducted by a researcher at the University of Pittsburgh, is attempting to facilitate the acquisition of clinical diagnostic and prognostic information needed to improve the early recognition of ARS.

Reproductive Health Surveys

NCCDPHP/DRH provided programming support for editing and cleaning of data from the Russian Women's Reproductive Health Survey in preparation for final data analysis.

Toxicants (Organic)

NCEH scientists collaborated in a study of cyrptorchism and its relation to serum levels of PCBs and persistent organochlorine pesticides.

Water surveillance remains a major activity of public health officials in Russia. During the summer months, upstream industrial activities discharge petroleum into the Volga River, contaminating the water supplies of downstream cities like Saratov. In 1997, reported baseline volatile organic compound levels of 12 kindergarten teachers from Saratov were documented, to be used for evaluation of suspected water supply contamination. Additional samples will be taken when a suspected exposure occurs.

TAJIKISTAN

Health Assessment

CDC staff, at the request of IFRC, conducted a general health assessment in October 1996.

Typhoid Fever

NCID/DBMD sent epidemiological and engineering teams to Tajikistan to investigate the large epidemic of multiply-resistant typhoid fever affecting the capital city, Dushanbe. The investigation identified the municipal water supply as the source. After emergency chlorination, cases dropped by more than 80%. Further investigation indicated that substantial repairs and maintenance to the water infrastructure are required and they are undertaking these. The infrastructure in the entire region is tenuous, and similar events may occur in neighboring countries.

EPO helped coordinate consultancies (with NCEH and NCID staff) to evaluate the typhoid epidemic, in collaboration with the American and the International Red Cross.

TURKMENISTAN

Hepatitis

NCID/DVRD conducted a study of long-term protection from Hepatitis B Virus infection in a vaccinated cohort of children in Turkmenistan.

UKRAINE

Epidemiology Training

EPO staff conducted the 8th in a series of 5-week courses that have been provided to groups of health professionals from NIS countries since 1993. In November-December 1996, the course was given for Ukrainian public health staff . EPO has planned and scheduled another 5-week training course for Ukrainian public health staff for February-March 1998.

Surveillance

EPO staff began work on a study of the cost-effectiveness of the surveillance system in Ukraine.

UZBEKISTAN

Acute Respiratory Infections

EPO researchers conducted a review of current policies and programs associated with childhood diarrheal diseases (CDDs) and acute respiratory infections (ARIs) in three republics (Kazakhstan, Kyrgyzstan, and Uzbekistan). These activities provided material needed by the BASICS program to develop training modules that cover CDDs and ARIs. EPO staff developed specific content recommendations for inclusion in revised administrative directives ("prikazi") with respect to diagnosis of the treatment for ARIs and CDDs, and gave those recommendations to Ministries of Health in the three participating republics (Kazakhstan, Kyrgyzstan, Uzbekistan).

Antibiotic Resistance

In Osh, Kyrgyzstan and Uzbekistan, and in Zhambyl, Kazakhstan, EPO researchers conducted studies to determine levels and patterns of resistance of *Haemophilus influenzae* and *Stapholococcus pneumoniae* in Kyrgyzstan and Uzbekistan and in Kazakhstan, respectively, to commonly used antibiotics (penicillin, ampicillin, trimethoprim-sulfamethoxazole, and chloramphenicol). The results of the study are being used to help guide the choice of the nationally recommended antibiotic for treating children with pneumonia in these republics.

MULTINATIONAL

AGEING

NCHS launched an International Collaborative Effort on Measuring Health and Health Care of the Aging (ICE on Aging) with an international symposium in 1988. Experts from Australia, Canada, Chile, Finland, Hong Kong, Hungary, Italy, Israel, the Netherlands, Norway, Scotland, Sweden, Switzerland and Venezuela, and U.S. participated and developed proposals for measurement research. Five projects were approved: Measuring Outcomes of Nursing Home Care; Comparative Analysis of Hip Fracture; Health Promotion and Disease Prevention; Measurement of Vitality in Older Persons; and Functional Disability. Because the ICE on Aging is modeled after an umbrella in that it covers several research projects, the status varies with the research project. Research on hip fracture rates and on functional disability in the U.S. and Canada is completed, and results have been published. Initial results of the research on outcomes of nursing home care have been published. An entire edition of the Canadian Journal on Aging was devoted to interim results. Final results of the analysis are being prepared. The research report on functional disability in the U.S. and Hungary is being reviewed. Research is on-going on the project on vitality and aging. The Proceedings of the III International Symposium on Data on Aging are being prepared for publication.

ANTIMICROBIAL RESISTANCE

NCID/DBMD collaborated with USAID and BASICS, as well as internally with the Office of Global Health, in assistance to the Central Asian Republics of Kazakhstan, Kyrgyzst and Uzbekistan on ARI. Staff reviewed control activities and developed strategies to improve care for children with pneumonia. They also surveyed antimicrobial resistance among respiratory pathogens and evaluated the burden of disease due to *Haemophilus influenzae*.

CANCER

NCCDPHP/DCPC provided financial support for the Union Internationale Contre le Cancer (UICC), the only neutral body with the internationally recognized role of reconciling and standardizing cancer staging classification systems. The UICC is responsible for publication of the internationally approved and adopted Tumor, Nodule, Metastasis (TNM) classification system for staging cancer at the time of diagnosis. TNM provides information critical to clinical prognosis, evaluation of cancer control programs, and facilitation of cancer data comparability and exchange internationally.

CHAGAS' DISEASE

NCID/DPD staff manages an international reference center for molecular taxonomy and genetics of Chagas' disease vectors.

CHILD SURVIVAL

NCID/CSA provided short-term technical assistance to the ministries of health in Kazakstan, Uzbekistan and Kyrgyztan in the evaluation and design of an AID-funded child survival project to reduce mortality from diarrhea and acute respiratory infections. Assistance focused on

evaluating the quality of clinical services in the three republics, reviewing surveillance data on childhood morbidity and mortality, and revising national policy statements for the control of diarrheal diseases.

CHOLERA AND DYSENTERY

NCID/DBMD through a 3 year PASA with USAID is working with WHO to improve surveillance and response in Southern Africa for epidemic cholera and dysentery, covering laboratory and epidemiologic training, and investigation for *Shigella dysenteriae* type 1, *E. coli* O157:H7, and *Vibrio cholerae* O1 and O139. A DBMD physician is stationed at the WHO subregional office in Zimbabwe to coordinate the effort from there. In addition to activities in individual countries, CDC /WHO conducted a laboratory training course for southern Africa. "Hands-on" training focused on practical diagnosis of the organisms that cause epidemic dysentery and cholera, collection and transport of stool specimens from remote field locations, and antibiotic resistance monitoring. In FY 97, in addition, began evaluating subtyping methods to describe spread of *Shigella dysenteriae* type 1 in Africa.

NCID/DBMD prepared a manuscript in conjunction with PAHO describing the relationship between cumulative cholera incidence with a variety of socioeconomic indicators for countries in the Western hemisphere. Countries with the highest incidence of cholera were characterized by infant mortality rates >40 per 1,000 live births, a Human Development Index <0.72, GNP per capita <$2,000, and female literacy rates <90%. These indicators suggest that, among Caribbean nations, Haiti and the Dominican Republic are at greatest risk for sustained cholera transmission.

CYSTICERCOSIS

The NCID/DPD-developed immunoblot test for cysticercosis has been established by PAHO as the primary tool for diagnosing cysticercosis in Latin America.

DENGUE

NCID/DVBID staff co-organized an International Conference on Dengue/Dengue Hemorrhagic Fever in Rio de Janeiro in October, 1996.

DIARRHEAL DISEASES

NCID/DBMD through a 3 year PASA with USAID is working with WHO to improve surveillance and response in Southern Africa for epidemic cholera and dysentery, covering laboratory and epidemiologic training, and investigation for *Shigella dysenteriae* type 1, *E. coli* O157:H7, and *Vibrio cholerae* O1 and O139. A DBMD physician is stationed at the WHO subregional office in Zimbabwe to coordinate the effort. In addition to activities in individual countries, CDC /WHO conducted a laboratory training course for southern Africa. "Hands-on" training focused on practical diagnosis of the organisms that cause epidemic dysentery and cholera, collection and transport of stool specimens from remote field locations, and antibiotic resistance monitoring. In FY 97, in addition, an evaluation began of subtyping methods to describe spread of *Shigella dysenteriae* type 1 in Africa.

DIPHTHERIA

NCID/DBMD laboratory efforts reflect that as the diphtheria epidemic progresses in Russia and the Republic of Georgia, new ribotypes and electrophoretic types (ET) are identified, allowing the monitoring of the evolution of epidemic and endemic strains, the epidemic clone that appeared in Russia with the emergence of the epidemic and characterized by clonal group ET8 and ribotypes G1 and G4 is still predominant in Russia. DNA sequencing of the toxin gene revealed no significant differences between the early and current epidemic strains and the strain used to produce the vaccine, confirming that the vaccine provides full protection. Molecular subtyping methods for rapid initial screening were evaluated and standardized (SSCP-ribotyping and RAPD), and their use allows for rapid testing of large number of isolates.

DRACUNCULIASIS

NCID/DPD staff participated in the Fourth Meeting of National Program Coordinators of Guinea Worm Eradication Programs in Niamey, Niger and in a review of the programs in endemic Anglophone countries, held in Sanaa, Yemen. DPD staff provided technical assistance to the International Commission for Certification of Dracunculiasis Eradication and participated in the Second Meeting of the Commission in Geneva, Switzerland.

NCID/DPD staff also carried out consultations to assist Guinea Worm Eradication Programs to Cote d' Ivoire, Mauritania, Sudan, Uganda, and Yemen.

ECHINOCOCCOSIS

A NCID/DPD staff member served as coordinator of NIH-funded echinococcosis research projects in Israel, Morocco, Jordan, and Tunisia. Activities included development of a common work plan and liaison with international research groups.

A NCID/DPD staff member served as Vice-Chairman of WHO Echinococcosis Working Groups.

EPIDEMIOLOGY TRAINING

PHPPO, EPO and Emory University' s Rollins School of Public Health designed, developed, and implemented a four-week course, "International Course in Applied Epidemiology" for 32 international epidemiologists representing 20 countries in Atlanta, Georgia, October, 1996.

FIELD EPIDEMIOLOGY TRAINING PROGRAM

EPO continues to implement its Field Epidemiology Training Programs (FETPs) in countries around the world. These programs seek to address critical infrastructure development through training of applied epidemiology and management skills. CDC works with countries' on a long-term basis to help them develop their own core public health capacity to deal with a broad spectrum of health problems and issues. Many FETPs have become self-sufficient and rarely require assistance from EPO staff. In FY 97 EPO began a planning and negotiation process to create a Secretariat for FETP, with the intent that this office will be supported by DIH over the next few years, but that it will eventually become an independent entity, to function

administratively and to provide logistical and all other needed support for FETPs around the world.

FOODBORNE AND DIARRHEAL DISEASES

NCID/DBMD lectured and led symposiums at a meeting for Caribbean public health authorities and hotel personnel. The meeting goal was to promote the creation of a Caribbean Hotel Sanitation Program (along the lines of the Vessel Sanitation Program) to reduce the risk for foodborne and diarrheal diseases among hotel quests. Meeting organizers and sponsors included the PAHO-supported Caribbean Regional Epidemiology Center (CAREC) and the Caribbean Hotel Association.

GENITAL ULCER DISEASE

NCID/DASTLR collaborated with the National Reference Center for STDs (Johannesburg) and Maseru Genitourinary Clinic (Lesotho) in South Africa, and Roche Molecular Systems in California on a study of GUD etiology in a high HIV-prevalence population. A manuscript describing the results of this study has been published in the *Journal of Infectious Diseases*. A second manuscript validating syndromic algorithms for GUD is in press in *Genitourinary Medicine*.

GROUP A STREPTOCOCCAL DISEASE

NCID/DBMD conducted an international workshop on Group A streptococcal disease to work with researchers from Canada, Czech Republic, England, New Zealand, and Russia on new typing system. The new emm typing method described the geographic diversity of group A streptococcal isolates, and in contrast to traditional M typing, was able to fully type essentially all isolates evaluated to date.

HEALTH EDUCATION

An Education and Information Division (EID)/NIOSH staff person participated as a course instructor in the Centre International d'Information de Securité et Santé au Travail (CIS) National Centers Advanced Training Course, "Occupational Safety and Health Information Sources," and Annual Meeting on June 22-28, 1997 in Finland. This CIS is sponsored by the International Labor Organization (ILO). NIOSH is the CIS Center for the United States and serves as the point of contact for all CIS activities in the United States.

A representative from the Education and Information Division (EID)/NIOSH met with representatives from the Institut National de Recherche et de Securité (National Institute of Research and Safety, INRS) in France. This meeting permitted an exchange of safety and health training information. INRS has developed and continues to develop occupational safety and health training materials for vocational and technical schools throughout France.

HEALTH INFORMATION SYSTEMS

NCHS' s North American Collaborating Center (NACC) represents the U.S. and Canada in international activities related to study and revision of the International Classification of Impairments, Disabilities and Handicaps (ICIDH). The NACC has cooperated with the World

Health Organization since 1992 in its efforts to revise the ICIDH by 1999. NCHS works collaboratively with Canadian ICIDH experts in developing revision proposals, and has set up revision task forces with Canadian and U.S. cochairs and members.

The most current revision draft is entitled "International Classification of Impairments Activities and Participation: A Manual of Dimensions of Disablement and Function" (ICIDH-2). The testing of an "Alpha" draft ended in December 1996, and the testing of the current "Beta" draft will end December 1997. Two NACC Field Testing Centers have been established for Beta testing, one for the United States at Washington University in St. Louis, and one for Canada at the Canada Institute for Health Information (ICHI) in Ottawa. The Fourth Annual NACC ICIDH-2 Revision Meeting was held in Ottawa, Canada, October 1997 followed by a 1-day research symposium. North American representation is also expected at the March 1998 WHO-sponsored ICIDH-2 revision meeting in Tokyo.

NCHS' s seventh edition of the International Health Data Reference Guide was published in June 1996. The purpose of this project is to provide information on the availability of selected national, vital, hospital, health manpower, and population-based health survey statistics from government and official agencies of respective countries, and to support the World Health Organizations' s goal of developing a common basis for international data comparison. The eighth edition of the guide is being prepared and will be published in 1998.

HEALTH PROMOTION

NCCDPHP/DACH assumed a lead role with WHO on the Mega Country Health Promotion Network to mobilize the world' s most populated countries to promote health in a concerted, collaborative effort. These countries include: Bangladesh, Brazil, China, India, Indonesia, Japan, Mexico, Nigeria, Pakistan, the Russian Federation, and the United States. The objectives for the Mega Country Health Promotion Network include: Increasing recognition of health problems; improving each country' s own national capacity to promote health; identifying priority areas on which the network can focus, which can be centered around health issues, population groups, or settings; selecting action areas and initial activities to work on together; identifying potential partners within and between countries and with private organizations and other agencies; and providing support to other nations in the region or world.

HEALTH STATISTICS

An increasing number of countries expressed an interest in automated coding of mortality data. Several use or plan to use NCHS software for that purpose. In response to the growing number of countries using or wanting to use this type of software, NCHS established the International Collaborative Effort on Automating Mortality Statistics to coordinate and promote the international exchange of relevant information and technology. The ICE will encompass a broad range of interests including automation in data collection, data processing, and data dissemination. NCHS sponsored the first "ICE on Automating Mortality Statistics meeting in November 1996. The proceedings of the 1996 meeting will be published early 1998. The next planning committee meeting will be held in 1998, and a full ICE meeting in 1999.

NCHS initiated an International Collaborative Effort on Injury Statistics (ICE On Injury) in 1994 with researchers from, Australia, New Zealand, The Netherlands, Denmark, Norway, England, Scotland, Israel, and WHO (Geneva, Switzerland) and the U.S. The goal of this ICE was to

improve international comparability and quality of injury data. The ultimate goal was to provide the data needed to better understand the causes of injury and the most effective means of prevention. NCHS sponsored an International Symposium on Injury Statistics in May 1994 and three working group meetings (March 1995, February 1996 and November 1996). Proceedings from the Symposium was published in 1995. A report will be prepared of the working group meetings. The ICE on Injury Statistics planning meeting was held in London, England in September 1997 to outline the upcoming ICE on Injury Statistics symposium to be held in Amsterdam, May 1998.

HEMOPHILIA

NCID/DASTLR staff provided technical assistance to Chile, Guam, and Saipan for the establishment and continuation of hemophilia care delivery. This involved working with the Ministries of Health in those countries as well as with hospitals, blood banks, hematologists, and persons with hemophilia to develop a plan for testing, delivery of factor, assessment by physicians, and networking among the hemophilia provider, patient, and peer populations.

HEPATITIS

NCID/DVRD participated in two WHO meetings to develop a strategy to produce WHO standards for HbsAg, anti-HBs, anti-HCV, and anti-HIV. These standards will be produced by the National Institute of Biological Standards and Control, Potters Bar, England.

NCID/DVRD provided technical assistance on hepatitis virus infections, including both laboratory and epidemiological expertise, to the Pacific Island Health Officer' s Association (representing the Countries of Republic of the Marshall Islands, Federated States of Micronesia and the Republic of Palau as well as the U.S. Territories of American Samoa and Guam and the Commonwealth of the Northern Mariana Islands). This is an ongoing project through a Memorandum of Agreement with the Department of Interior.

HIV

NCID/DASTLR staff continued the global HIV variant study. The primary goals of this project are international surveillance for HIV variants and genetic characterization of regional epidemics. The program provides for continuing evaluation of HIV diagnostic technology to determine modifications necessary to ensure that tests used in this country are able to detect all the HIV strains in circulation, both to maintain the safety of the blood supply in the United States and to facilitate individual diagnosis. To date, genetic analysis of HIV variants has been conducted in the following countries: Bahamas, Brazil, Cameroon, Central African Republic, China, Honduras, Kenya, Lebanon, Morocco, Nigeria, Switzerland, Trinidad, US/Puerto Rico, Uruguay, and Zaire. Major collaborations for variant surveillance have thus far been established with UVRI (Uganda), Projet RETRO-CI (Côte d'Ivoire), KEMRI (Kenya), and HAC (Thailand).

NCID/DASTLR staff participated in serotyping of HIV strains prevalent in countries with WHO-sponsored vaccine sites including Brazil, Rwanda, Thailand, Côte d'Ivoire, and Uganda as part of the WHO Network for HIV Isolation and Characterization. Staff have primarily been involved in the development of peptide EIAs for rapid subtyping of HIV-1 in these countries. NCID/DASTLR staff participated in the characterization of HIV clades C and A for vaccine

development, as members of the UNAIDS-sponsored collaborative study on "Characterization of globally prevalent HIV-1 strains."

HUMAN HERPES VIRUSES

NCID/DVRD collaborated with investigators on studies of the global distribution and molecular epidemiology of HHV-8.

INTERNATIONAL CLEARINGHOUSE FOR BIRTH DEFECTS MONITORING SYSTEMS

The International Clearinghouse for Birth Defects Monitoring Systems (the "Clearinghouse") was founded in 1974 to provide a forum for the rapid communication of information among the various birth defects monitoring or surveillance programs around the world. The Clearinghouse is an independent, non-profit-making organization that was originally sponsored by the March of Dimes Birth Defects Foundation and has, since 1986, been affiliated to the World Health Organization as a non-governmental organization.

A major activity of the Clearinghouse is to monitor changes in the occurrence of birth defects, changes that might signal the introduction of a new teratogen. For the purpose of keeping a watchful eye on the occurrence of defects, member programs exchange data through quarterly reports. These reports contain preliminary data and are therefore not available for general distribution.

Collaboration between a large number of monitoring programs located in every continent of the world, and together covering a total of more than 2.5 million births annually, provide an opportunity for research on a scale that would be impossible for any single program.

Information about the activities of the Clearinghouse are to be found in the book 'Congenital Malformations Worldwide: A Report from the International Clearinghouse for Birth Defects Monitoring Systems'
(Amsterdam Elsevier, 1991). It presents data for the period 1974-1988 for 22 types of congenital malformations. In 1993, WHO published 'Guidelines for the Development of National Programmes for Monitoring Birth Defects', a booklet prepared by the International Centre for Birth Defects on behalf of the Clearinghouse.

The Clearinghouse covers only a fraction of the world's births, and the sample are far from representative. There are still large areas where very little is known about the occurrence of birth defects, and where genetic and environmental factors may be different from those in the populations presently studied. The Clearinghouse encourages the formation and participation of other monitoring programs. Members of the Clearinghouse assemble each year at a working conference to set goals and priorities, to plan collaborative studies and to discuss mutual problems. There are currently 27 member programs from the following countries:

Australia, Canada, China, Czech Republic, Denmark, England and Wales, Finland, France, Hungary, Israel, Italy, Japan, Mexico, Netherlands, Norway, South Africa, Spain, Sweden, USA, and nine countries in South America.

INTERNATIONAL DOCUMENTS

The International Programme on Chemical Safety (IPCS)/WHO recently developed a new type of document called a Concise International Chemical Assessment Document (CICAD). This document provides a concise assessment of the health and environmental hazards and risks of chemical, advice about preventing exposure to them, and protective measures. It concentrates on the critical information from which the conclusions are derived. Furthermore, the CICAD, which is intended for international use is based on national review documents on chemical hazards of the author country. As a participating member, NIOSH recently submitted to the IPCS a draft CICAD on 2-Butoxyethanol (2-BE) prepared by an Education and Information Division (EID) representative and based on the NIOSH criteria document on 2-BE [NIOSH 1990] and on an ATSDR Toxicological Profile on 2-BE [ATSDR 1996].

LABORATORY PROFICIENCY TESTING

The Public Health Practice Program Office (PHPPO) has the responsibility for assessing the quality of performance of laboratories that test for diseases of public health significance. These assessment activities include collecting information about the public health workers, the public health systems with which these workers are associated, and the laboratory systems in which the testing laboratories are associated. Internationally, PHPPO's activities focus primarily on assessing testing laboratory performance and improving or maintaining the quality of laboratory practice in support of public health objectives, as well as developing training materials to meet the needs of high priority international health programs. During FY97, PHPPO's Model Performance Evaluation Program (MPEP), located in the Laboratory Practice Assessment Branch (LPAB), Division of Laboratory Systems (DLS), assessed the performance of laboratories that test for HIV-1 and HTL V-I/II antibodies.

LABORATORY TRAINING

This collaboration between CDC and ASTPHLD involves training in TB laboratory science for selected international participants (primarily from Mexico but also including other countries) in US state public health laboratories (SPHL) and sending US experts to provide specialized training in selected international laboratories. This program was recently instituted and in FY 97 the QA coordinator for INDRE spent 5 weeks training at the Wisconsin State Laboratory and CDC.

LEAD

As part of a project jointly sponsored by USAID and CDC, scientists from Israel, Jordan, and Palestinian Gaza Strip and West Bank, are collaborating on childhood lead poisoning prevention activities in the Middle East. The scientists are currently planning to implement a blood lead survey to determine the extent of childhood lead poisoning in urban areas.

LEPTOSPIROSIS

NCID/DBMD provided diagnostic serology for leptospirosis to Canada, El Salvador, Guam, Guatemala, India, and Rwanda. They also provided reference *Leptospira* stains for research

purposes to WHO Collaborating Center in Australia, Canada, and to the Culture Collection of the Institut Pasteur in France.

MALARIA

NCID/DPD staff produced and distributed ELISA reagents to identify and quantify *P. falciparum, P. vivax*-210, *P. Vivax*-247, *P. malariae* or *P. ovale* circumsporozoite proteins to scientists and public health workers for use in over 20 countries, to include: Brazil, Burundi, Ethiopia, French Guiana, Gabon, Gambia, Germany, Honduras, India, Indonesia, Kenya, Korea, Mali, Myanmar (Burma), Peru, Sri Lanka, South Africa, Surinam, Thailand, and the United States (CA, DC, FL, LA, MD, TX, VT). Training on the use of the ELISAs has been conducted at three laboratories and additional training at CDC of WHO-sponsored personnel is scheduled. Reagents have also been furnished for use in two international training workshops focusing on tropical medicine.

NCID/DPD staff participated in workshops on control of malaria epidemics, held in Ethiopia and Namibia. Participants were program managers and public health officials from 16 African and Middle Eastern countries. These workshops were supported with funds from USAID and WHO.

NCID/DPD staff participated in a workshop on operational research held in The Gambia. Participants were public health officials from nine sub-Saharan African countries. This workshop was supported with funds from USAID an WHO. NCID/DPD staff participated in a regional consensus meeting in Burkina Faso on malaria therapy efficacy in the western African region. Key participants included malaria control program managers from 10 West African countries associated with the Organisation de Coordination et de Cooperation pour la lutte contre les Grandes Endemes (OCCGE).

NCID/DPD staff continued organizational activities related the USAID project entitled African Integrated Malaria Initiative (AIMI) for Malawi, Kenya, Zambia, and Benin.

NCID/DPD staff participated in two workshops on malaria control in Africa with Francophone and Anglophone program managers, supported with funds from USAID and WHO.

NCID/DPD staff collaborated with investigators at the University of Rome, Italy, the Kenya Medical Research Institute, Kenya, and the ORSTOM laboratory in Dakar, Senegal on the molecular genetic investigations of the *Anopheles gambiae* and Anopheles funestus complexes.

NCID/DPD collaborated in the development of district-level malaria control projects in Malawi, Kenya, and Zambia. These projects will evaluate the feasibility and sustainability of an integrated approach to malaria control at the district level in selected districts in the three countries. The principal interventions will be case management of malaria in health facilities and communities, prevention of malaria in pregnancy, and the use of insecticide-impregnated bed nets or curtains.

MANAGEMENT TRAINING

PHPPO staff traveled to Malaysia to attend the International Clinical Epidemiology Network (INCLEN) Annual Scientific Conference in February, 1997.

MENINGITIS

NCID/DBMD assisted the WHO in the development of control strategies for epidemic meningococcal disease in the African Region and Eastern Mediterranean Region. Staff participated in a Working Group to plan for the provision of adequate supplies of meningitis vaccine for epidemic prevention and control.

NCID/DBMD, in collaboration with WHO meningococcal collaborative centers from Oslo, Norway and Marseilles, France, preparing an extended manual of laboratory methods for diagnosis of meningitis caused by *N. meningitidis*, *H. Influenzae* and *S. Pneumoniae*.

MYCOTIC DISEASES

NCID/DBMD served as a world-wide resource for reference laboratory mycology providing consultations and assistance for problematic cases of mycotic diseases referred by international organizations from 16 different countries. The major area of applied research with international collaboration was to develop and evaluate advanced polymerase chain reaction (PCR) based diagnostic probe technology for aspergillosis and candidiasis. Since these diseases are world-wide in distribution their control and prevention through more rapid diagnosis will have global impact.

NCID/DBMD WHO Collaborating Center for the Mycoses received funds to establish an Antifungal Drug Investigations Laboratory by providing a full-time microbiologist as technical support for the lead scientist. The immunodiagnostic lab received and tested serologic and histologic specimens referred by public health laboratories from 13 nations. In addition, reference diagnostic services were provided to laboratories in Argentina, Brazil, Bulgaria, France, India, Israel, and Switzerland. A total of 72 cultures of filamentous fungi and yeasts were identified. Further, a total of 47 cultures were sent to Australia, Canada, India, Mexico, and the Netherlands for reference, research, and collaborative projects. NCID/DBMD Mycotic Diseases Branch is headquarters for the International Commission on Antigens and Molecular Diagnostics of the International Union of Microbiological Societies.

NCID/DBMD scientists organized and conducted the Scientific Program of the Medical Mycology Society of the Americas in Miami in May, 1997, including speakers from Brazil on the topic of histoplasmosis and Canada on the topic of mycologic studies on uncommon clinically important fungi.

NCID/DBMD scientists organized a Symposium on the Molecular Diagnosis and Epidemiology of Fungal Infections that was conducted in Parma, Italy in June 1997 as part of the 13th International Congress of the Society for Human and Veterinary mycology including speakers from France, Japan, and the CDC.

OCCUPATIONAL EXPOSURE

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from some 100 countries. The secretariat of Sub-Committee 2 (SC2) Workplace Atmospheres, within Technical Committee 146 (TC 146), Air Quality, is held by the

United States under the auspices of our national standards body, the American National Standards Institute, ANSI. A NIOSH/DPSE scientist is the chair and another NIOSH/DPSE staff member is the secretary of ISO/ TC 146/ SC 2. Other NIOSH staff participate on an ad-hoc basis. Within this ISO activity, eleven (11) International standards are in various stages of preparedness.

A meeting of ISO/TC 146/ SC 2, Workplace Atmospheres was held in November, 1996 at the NIOSH Alice Hamilton Laboratories in Cincinnati, Ohio. Twenty-five participants representing the United Kingdom, Germany, Spain, the Occupational Safety and Health Administration, the Mine Safety and Health Administration, private industry, and NIOSH discussed and worked on international standards for measuring workplace exposures to metals and organic vapors.

In September, 1997, six NIOSH researchers attended the biennial meeting of ISO/ TC 146 in Hawaii. These meetings featured a day-long symposium on isocyanates wherein isocyanate experts form around the world presented their research.

OCCUPATIONAL HAZARDS

The vast knowledge on occupational hazard prevention and control is not yet fully applied, and an unacceptable number of occupational diseases still occurs every day throughout the world due to a lack or inadequacy of preventive measures in the workplace. For example, although silicosis has been known for centuries, exposure to dusts containing free crystalline silica remains uncontrolled in countless workplaces throughout the world, still providing "text book" cases of this perfectly preventable disease. In recognition of this continued problem, a Joint ILO/WHO Committee on Occupational Health, at its 12th Session in April 1995, decided to develop a joint program aiming at the global reduction and eventual elimination of silicosis. This project is designed to promote and strengthen national capabilities in the field of prevention and control of dust exposure in the work environment, by contributing to the development of human resources.

A NIOSH/EID staffer attended a meeting in Israel of the International Labor Organization's Steering Committee about Hazard Datasheets on Occupations. The Steering Committee used NIOSH EID data as a critical part of their selection criteria for approximately 60 priority occupations for physical and chemical hazard identification card development. The hazard identification cards present data about acute and chronic hazards involved in selected occupations in a format designed to allow the occupational safety and health professional to quickly format a hazard communication system for workers in those occupations. A compiler is being designed to allow translation of the cards into multiple languages. Twenty-one cards have been completed and reviewed.

Since 1986, NIOSH/EID staff have participated in a multinational effort with the World Health Organization, International Programme for Chemical Safety (IPCS), to develop concise international chemical assessment documents known as ICSC cards (International Chemical Safety Cards). This project enables NIOSH to participate in an international process with 14 other institutions from 10 countries. Highly technical hazard communication data (material safety data sheets) are translated into concise, accurate, and easily understandable information for workers and managers in both small and large businesses. With NIOSH/EID staff serving as one of the leaders supporting this effort, 869 ICSCs on chemicals found in a multitude of different workplaces have been developed and translated into more than 20 languages.

During FY 1997, NIOSH developed 21 new cards and reviewed 27 cards developed by other countries. Most importantly, in FY 1997, a NIOSH/EID computer programmer wrote programs to automatically generate HTML-tagged versions of the ICSCs that permitted the mounting of these cards on the NIOSH Home Page. Currently, only the English-language version of the cards is available on the NIOSH Home Page. However, there are plans to have Finnish, French, Spanish, Swahili, Malaysian, and German language cards available on the NIOSH Home Page. Additionally, several versions of the programs were created to generate cards in other formats.

OCCUPATIONAL HEALTH

Health surveillance of working populations in WHO Member States is not adequate in detecting occupational health problems, even those which are well recognized. Even in developed countries, surveillance efforts are fragmental, hence unable to produce complete statistical records. Furthermore, national statistics on occupational health are poor or not existent in many developing countries. General practitioners and other health care workers responsible for health surveillance of working people lack appropriate knowledge on occupational health and work-related diseases, leading to under-diagnosis and under-reporting. Thus major parts of occupational disease and other work-related health problems are hidden in national general health statistics. Therefore, there is a great need for training of physicians and other health care workers in occupational health. Guidance and assistance to Member States towards the improvement of occupational health surveillance of working populations is being developed as follows:

- Using the table of occupational sentinel health events in conjunction with the International Statistical Classification of Diseases and Related Health Problems (ICD-10) to develop a table of internationally acceptable diagnostic criteria for identified occupational and other work-related diseases and health conditions.

- Developing WHO training materials on health surveillance of working populations and organization of training courses for trainers, testing the training materials, and printing for use in international and national training courses.

A NIOSH/OECSP project represents a continuation and strengthening of activities conducted under the 1995–96 cooperative agreement between WHO and NIOSH. These activities include support for Mexico and South Africa in the development of a national plan for human resources development (HRD) in environmental and occupational health. The purpose of such a framework is to ensure systematic, priority-based planning and to produce and maintain the necessary resources in the field. The planning process in both countries included the identification of a steering committee of key employers and educators of human resources.

NIOSH/OECSP contributes to the Fogarty International Center of the National Institutes of Health to support training of foreign researchers in disciplines related to occupational safety and health (e.g., epidemiology, occupational medicine, industrial hygiene, safety engineering, and toxicology) and to assist foreign researchers in conducting local investigations. The Fogarty Center has made awards to 12 U.S. universities, which have projects underway in 20 countries throughout Africa, Asia, Central Europe, and Latin America. Among these countries are Mexico, South Africa, and Vietnam, which are countries with whom NIOSH has entered into long-term bilateral collaborative arrangements. NIOSH is pursuing coordination of activities with the Fogarty awardees in these countries.

OCCUPATIONAL INJURIES

Two NIOSH researchers, one from the Education and Information Division (EID) and one from the Division of Surveillance, Hazard Evaluations, and Field Studies (DSHEFS), participated in the annual meeting of the International Construction Roundtable. This conference, held in California, was attended by leaders in construction safety and health. They represented programs in the United Kingdom (Health and Safety Executive), Germany, Sweden (Byggbranschens Forskningsstiftelse for Arbetsmiljo & CGB Central Galazen Bygg), the Netherlands (Arbouw), Malta (International Construction Health and Safety Program), and Japan (Japan Construction Safety and Health Association). Each representative briefly described their programs, activities accomplished since the meeting last year, and future plans.

The EID/NIOSH representative serves as Secretary of the Scientific Subcommittee on Musculoskeletal Disorders by IUCOH. This Subcommittee is involved in the development of collaborative research to reduce work-related musculoskeletal disorders.

ONCHOCERCIASIS

NCID/DPD collaborates with multilateral and bilateral agencies, ministries of health, and nongovernment donor organizations, particularly The Carter Center, to develop and sustain national onchocerciasis control programs that deliver ivermectin to disease-endemic communities. The Global 2000 Program of The Carter Center has responsibility for administration of the field programs established in Nigeria, Uganda, Cameroon, and Latin America by the Houston-based River Blindness Foundation. The new program at The Carter Center (the Global 2000 River Blindness Program-GRBP) has its offices at DPD in Chamblee, and its deputy director is a DPD medical officer detailed to work on developing this new program. More than 4 million people were treated with ivermectin in GRBP-assisted programs in 1997.

NCID/DPD/s field station in Guatemala, MERTU/G, has been designated the regional mapping center for onchocerciasis for the Americas. In this context, MERTU/G staff conduct training programs in the use of geographic information systems and produces maps and other materials to support the national programs for the elimination of onchocerciasis in the Americas.

ORAL HEALTH

NCCDPHP/DOH collaborated with PAHO to provide technical assistance to countries in the Americas regarding the implementation of initiatives to prevent dental caries, particularly the use of fluoridated dietary salt. Countries assisted included Bolivia, the Dominican Republic, Nicaragua, Surinam, Peru, Mexico, Costa Rica, and the Bahamas.

PHYSICAL FITNESS

NCCDPHP/DNPA, at the invitation of WHO, participated in a meeting to: (1) identify major strategies, facilitating factors, and constraints in developing national policies and programmes on active living and physical activity for health; (2) review existing support provided to countries to

promote policies on active living; (3) strengthen collaboration between members of the group and formulate membership criteria; and (4) devise a plan of action for 1997-2000.

PUBLIC HEALTH SCHOOLS WITHOUT WALLS

A new partnership with the Rockefeller Foundation has provided the opportunity to create Public Health Schools Without Walls (PHSWOW) in several countries, which focus on building in-country capacity to respond to and develop strong public health programs. This is achieved through field training in several public health fields, especially epidemiology, and building training capacity at all levels of public health infrastructure. EPO began negotiations with Rockefeller to provide training using a Field Supervisor Training Workshops series of modules in Zimbabwe, Uganda, Ghana, and Vietnam.

QUALITY CONTROL

The basis for TB diagnosis in Mexico, Vietnam and many other countries is direct sputum smear microscopy for AFB. CDC is working with the Mexican states of Coahuila and Nuevo Leon, Vietnam National TB program, Texas, and Massachusetts to develop a proficiency testing (PT) program that low-income countries can use as quality control for AFB microscopy. This multinational project has developed a well-tested package of protocols, procedures, and software that low-income countries can use to implement a national or regional PT program to evaluate the performance of AFB microscopy at the local level. Both Vietnam and the Mexican states have pilot tested the protocols and samples in 60 laboratories using existing networks of local clinics. Results from the initial pilot test administered to 22 local laboratories by the state laboratories in Coahuila and Nuevo Leon demonstrated some problems in identifying smears with low numbers of AFB. Preliminary results from a repeat PT test administered to 20 laboratories in Nuevo Leon and Coahuila showed a substantial improvement in performance. DLS/PHPPO is working with all the collaborators to refine the procedures, protocols, forms, software, and pilot test data into a format for international distribution. INDRE is also providing consultation to this PT study and has expressed interest in proficiency testing as a national quality control (QC) program for AFB microscopy in Mexico.

RABIES

NCID/DVRD consulted with the Pacific Island Health Officer' s Association (representing the Countries of Republic of the Marshall Islands, Federated States of Micronesia and the Republic of Palau as well as the U.S. Territories of American Samoa and Guam and the Commonwealth of the Northern Mariana Islands) on the feasibility of oral rabies vaccination of free-ranging dogs as an adjunct to parenteral immunization.

NCID/DVRD initiated collaborative efforts to standardize the challenge virus used in rabies fluorescent focus inhibition tests employed as the test to measure neutralizing antibodies and to compare existing tests and techniques for all WHO Collaborating Laboratories.

NCID/DVRD in collaboration with Maryknoll Fathers and Brothers, Maryknoll, NY, conducted a survey of rabies pre- and post-exposure treatment among mission personnel serving outside the United States in some 20 countries where rabies is enzootic in order to assess knowledge of rabies and rabies vaccination recommendations in this occupational group. Public health knowledge gained upon completion of this study will allow for assessment of the effectiveness of

current rabies recommendations and provide direction for any necessary revisions and improvements. (Countries & regions - Kenya, Tanzania, Bolivia, Brazil, Mexico, Venezuela, Bangladesh, Japan, Korea, Nepal, Philippines, Taiwan, Thailand, Middle East, Central America, Andes, Hong Kong).

REFERENCE LABORATORY ACTIVITIES

NCID/DBMD laboratory staff performed reference identification of clinical isolates in Argentina, Australia, Belgium, Belize, Brazil, Bulgaria, Canada, Chile, Costa Rica, Denmark, Dominican Republic, El Salvador, Ecuador, France, Ghana, India, Israel, Mexico, New Zealand, Nigeria, Republic of China South Africa, South Korea, Spain, Sweden, and Switzerland.

REPRODUCTIVE HEALTH SURVEYS

NCCDPHP/DRH provided organization, maintenance, and programming for data sets and accompanying documentation for all past and current international reproductive health surveys conducted by DRH.

POLIO ERADICATION

NCID/DVRD is helping develop the laboratory network for global Polio eradication.

SCHOOL HEALTH

NCCDPHP/DASH and WHO worked with several countries (e.g., China, South Africa, India, Pakistan) to assist health and education representatives to collaborate in determining ways to improve school health programs. WHO' s Mega Country Initiative includes officials who are responsible for their country' s school health programs from approximately ten countries with the world' s largest school-age populations. The officials have agreed to jointly publish a manuscript describing national strategies to support school health promotion in the Mega Countries.

WHO and DASH also provided technical support for country-level actions to create Health Promoting Schools. WHO and DASH worked with China and South Africa to use priority health issues, including Helminth control, HIV/STD prevention and violence prevention as entry points for the development of Health Promoting Schools. Experiences gained in these efforts will be diffused through the Regional Networks of Health Promoting Schools.
DASH helped build alliances for school health among international organizations, including WHO and Education International (EI). EI reaches a major portion of the world' s teachers; its 259 affiliated unions in 140 countries represent more than 23 million teachers and education workers.

SYPHILIS

NCID/DASTLR provided proficiency testing for 62 laboratories in 48 countries as a part of the WHO/PAHO/CDC agreement. The 18 PAHO countries participating were Argentina, Aruba, Barbados, Chile, Colombia, Ecuador, Guyana, Honduras (Laboratorio Poujal, Laboratorio Central de Salud Publica, and Cruz Roja Hondurena), Jamaica, Mexico (INDRE, Contro Nacional de la Transfusion Sanguinea, Laboratorio Estatl de Salud Publica, Asociacíon

Mexicana de Bioquímica Clinica, and Laboratorio Central de Reactivos), Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela, and the West Indies (St. Kitts and Trinidad). The 30 WHO-selected national laboratories receiving shipments were Australia (Westmead, Adelaide, and Fairfield), Burma (Myanmar), Cameroon, Canada, Czech Republic, China, Denmark, Ethiopia, France (Institut Alfred Fournier and Institut Pasteur), Hong Kong, India, Israel, Korea, Malaysia, New Guinea, New Zealand, Nigeria, Philippines, Poland, Portugal, Singapore, South Africa, Spain, Sri Lanka, Surinam, Taiwan, Thailand (VD Control Division, CDC/HAC/Bangkok, Chaing Rai Hospital Laboratory, Siriraj Hospital Serology Laboratory, and Rajavithi Hospital Serology Laboratory), The Gambia, United Kingdom, and Zambia.

NCID/DASTLR staff evaluated eight reagents from manufacturers in Canada, Colombia and United Kingdom. Six of these reagents (73%) met the CDC criteria of acceptability.

NCID/DASTLR and Biological Products Activity/Scientific Resources Program provided reference reagents for syphilis serology to investigators in Australia and England.

NCID/DASTLR staff provided viable treponemes to researchers in Spain, Japan, Canada and England aliquots of reference serum samples or reference panels to researchers or commercial reagent manufacturers in Australia, Ireland, and Scotland.

TOBACCO CONTROL

NCCDPHP/OSH, HHS, and PAHO convened meetings to support a Joint Workshop on Tobacco, Gender, and Adolescence. The focus of the workshop will be primary tobacco use prevention among adolescents with cross-cultural themes for risk-taking behaviors, initiation, maintenance of tobacco use, and implications for policy interventions.

NCCDPHP/OSH sponsored a satellite meeting for WHO Collaborating Centers for Tobacco at the 10th World Conference on Tobacco or Health in Beijing, China. The meeting enabled discussions to continue among the WHO Tobacco or Health Collaborating Centers and its Regional Offices.

The discussions enhanced coordinated global activity and promoted potential linkages with WHO Collaborating Centers worldwide. The World Conference featured key presentations by OSH and discussions on international efforts to reduce and prevent tobacco use.

NCCDPHP/OSH provided technical assistance to the World Bank in response to the passing of a resolution to promote tobacco-free economies and continues to actively explore strategies to implement the resolution. CDC provided the World Bank with a medical epidemiologist, and is collaborating with the Bank to conduct an economic tobacco related analysis.

NCCDPHP/OSH provided support to the Tobacco Control Commission of Africa (TCCA) and the WHO African Regional Office to develop an African Regional Plan of Action for tobacco control. The draft action plan called for: (1) identification of data needs and research priorities in relation to all aspects of tobacco control; (2) training for tobacco control advocates in Africa; (3) building sustainable human and institutional capacity; (3) securing short-term funding for

TCCA; and (5) developing long-term sustainable sources of funding such as a country-based tobacco excise tax.

NCCDPHP/OSH participated in the CDC-NIH-PAHO Secretariat for Latin America that facilitates coalition building at the local level, broadening of the coalition, and building local partnerships between the PAHO Focal Points, Ministry of Health, and the CLACCTA (Latin American Coordination Committee on Tobacco Control) representatives.

NCCDPHP/OSH, as the only WHO Collaborating Center for Tobacco designated for North America, is responsible for developing the infrastructure and capacity for tobacco control activities in the North American Region and in other regions through active collaborations with other WHO centers in Brazil, UK, China, Japan, Sweden, Poland, France, and Italy. In this capacity, OSH collaborated with WHO (Tobacco or Health Programme) to convene the first conference with all nine WHO Collaborating Centers for Tobacco and six WHO Regional Offices. OSH, in collaboration with WHO, organized a workshop in Beijing on strategies for developing a global tobacco clearinghouse network.

NCCDPHP/OSH provides ongoing technical and scientific support to the World Health Organization (WHO) Tobacco or Health Program to: (1) strengthen national and international tobacco control programmes to prevent and reduce tobacco use, with emphasis on developing and central and eastern European countries; (2) promote the concept of tobacco-free societies and non-use of tobacco as normal social behavior through advocacy and public information; and (3) develop a "Tobacco or Health" research and information center to collect, prepare, and disseminate standardized information on tobacco or health epidemiology and on strategies to prevent tobacco use.

NCCDPHP/OSH participated in an HHS interagency Task Force to review the U.S. government's trade policy on tobacco exports. Additionally, NCCDPHP/OSH worked with USTR to review tobacco trade policy and made recommendations with regard to various conflicting tobacco related issues, including health implications, economic implications, and global consumption trends.

NCCDPHP/OSH collaborates with UNICEF on tobacco use and prevention among children and young people worldwide, especially in developing countries. CDC continues to work with UNICEF and WHO in preparation for the 1998 World No-Tobacco Day theme which is focused on children.

NCCDPHP/OSH participated in tobacco control and prevention panels and symposia at the 4th International Conference on Health Promotion, and assisted in drafting the health promotion declaration for the year 2020. The conference focused on different entry points for health promotion interventions designed to promote significant global gains in health and well being.

NCCDPHP/OSH participated in a preparatory meeting that involved formulating a consultative group to define and promote the objectives of an international tobacco control framework. In recognition of the serious health risks caused by tobacco and the need to intensify international and national actions to control the global tobacco epidemic, the World Health Assembly adopted resolution WHO 49.17 in May 1996 requesting the Director-General to initiate the development of an International Framework Convention for Tobacco Control. The convention involves: (1) a preparatory process to define the degree to which the convention can become a legally binding

instrument acceptable to Member States and how the Convention can best support national and international efforts in tobacco control; and (2) a strategy to encourage Member States to progress towards the adoption of comprehensive tobacco control policies, as well as address aspects of tobacco control that transcend national boundaries.

NCCDPHP/OSH, in collaboration with WHO, developed a proposal to create a global network of clearinghouses on tobacco prevention and control that includes the six Regional Offices, nine WHO Collaborating Centers on Tobacco or Health, other WHO tobacco-related collaborating centers, tobacco-related clearinghouses, and other electronic information systems. This activity will: (1) standardize, strengthen, and facilitate the global electronic exchange of health-related information and resources in tobacco control; (2) upgrade the information dissemination system in WHO regions, specifically those regions that currently have no WHO Tobacco Collaborating Centers, (i.e., South East Asia (SEARO), Africa (AFRO), and Eastern Mediterranean (EMRO)); and (3) develop an electronic network to facilitate regular dissemination of standardized and updated country-specific global information on tobacco-related health issues to all WHO Regions.

TRAUMA CARE

NCIPC continued to distribute internationally the CDC Trauma Registry Software.

TUBERCULOSIS

A NIOSH/DPSA served on a CDC TB Consultation Team that consulted with health authorities in Brazil, Ivory Coast, and Latvia in 1997. The focus of the work was reducing the nosocomial transmission of TB in hospitals. Ventilation, the location of patient facilities, the use of personal protective equipment, and proper use of laboratory equipment were among the topics addressed. General guidelines for control of TB for developing countries (joint effort of NIOSH, NCID, and NCHSTP), are being developed based on visits over the last two years. The researcher will draft manuscripts describing specific engineering control recommendations, as well as the construction and performance specifications for an effective, yet inexpensive, ClassÿI biological safety cabinet (BSC). A DPSE/NIOSH is assisting with the Thailand project by providing duct and fan specifications for two isolation rooms.

NCID/DASTLR established the Mycobacteriology Laboratory as a WHO supranational reference laboratory and participated in the WHO Global Surveillance Program on Antituberculosis Drug Resistance. The NCID Mycobacteriology Laboratory served as the reference laboratory for project activities in Latvia and Mexico.

NCID/DASTLR, in collaboration with CDC/Office of the Director (OD)/Epidemiology Program Office (EPO) and Project Hope, evaluated laboratory capability at seven laboratories, presented lectures and discussions on laboratory procedures as part of a conference to establish a tuberculosis control program according to WHO recommendations, and provided consultation in improving the tuberculosis control program in Kazakhstan and other Central Asian Republics.

VENEZUELAN EQUINE ENCEPHALITIS

NCID/DVBID staff participated in two training courses for the diagnosis of Venezuelan equine encephalitis (VEE) viral infections and identification of VEE viral isolates. The course was designed for participants from Central and South America and Mexico.

WORLD INJURY NETWORK (WIN)

In follow up to the formation of a preliminary, interim steering committee at the Third World Conference on Injury Control in Melbourne, Australia in February 1996, a NCIPC researcher met with steering committee members in Geneva, Switzerland during FY 1997 to discuss ways to facilitate injury prevention and control at an international level through an organization/structure that would provide for the exchange of information, knowledge, and technical assistance to the injury prevention professional community. Committee members agreed to work through the WHO to establish a WWW site that would be managed by WHO as a means of communicating between WIN members and disseminating a WIN newsletter. The interim steering committee will work towards selection of permanent committee members.

Appendix I: *Index of Global Health Activities, by Subject and Country*

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C

D

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Appendix II: *List of Acronyms*

A

ABMAC	American Bureau for Medical Advancement in China
ACHS	Asociacion Chilena de Seguridad
AFB	Acid Fast Bacteria
AFEB	Analysis and Field Evaluations Branch
AID	Agency for International Development
AID/S&T/POP	Agency for International Development/Bureau for Science and Technology/Office of Population
AIDS	Acquired Immunodeficiency Syndrome
AIDSCAP	AIDS Control and Prevention Project
AIHA	American Industrial Hygiene Association
AIHS	American International Health Alliance
AIMI	African Integrated Malaria Initiative
AMDA	Association of Medical Doctors of Asia
AMREF	African Medical and Research Foundation
AMRU	Army Medical Research Unit
ANC	Antenatal clinics
ANSI	American National Standards Institute
APO	Apolipoproteins
ARC	American Red Cross
ARC	American Refugee Committee
ARI	Acute Respiratory Infections
ASTPHLD	Association of State and Territorial Public Health Laboratory Directors
ASTRO	Archival Specimen Tracking and Retrieval Operation
ATSDR	Agency for Toxic Substances and Disease Registry
AWWARF	American Water Works Association Research Foundation
AZT	Oral Zidovudine

B

BASICS	Basic Support for Institutionalizing Child Survival
BBA	Brush Border Antigens
BCG	Bacillus of Calmette and Guérin (BCG)
BDDD	Birth Defects and Developmental Disabilities
BDI	Bungoma District Initiative
BG	Berufsgenossenschaft
BLLRS	Blood Lead Laboratory Reference System
BMU	Beijing Medical University
BRFSS	Behavioral Risk Factor Surveillance System

C

C/PHN	Center for Population, Health and Nutrition, USAID
CAART	Chinese Association for Aerosol Research in Taiwan
CA	Cooperating Agency
CAD	Computer Aided Design
CAD	Center for Adult Diseases, Japan
CANMET	Canadian Centre for Mineral Energy and Technology
CAPM	Chinese Academy of Preventive Medicine
CAR	Central Asian Republics
CARE	Cooperative for American Relief to Everywhere, Inc.
CAREC	Caribbean Epidemiology Center
CARMEN	PAHO Project Name
CBB	Clinical Biochemistry Branch
CCHF	Crimean-Congo hemorrhagic fever
CCMIS	Contraceptive Commodity Management Information System
CDC	Centers for Disease Control and Prevention
CEAS	Centro de Estudios y Asesoria en Salud
CEDPA	Center for Development and Population Activities
CHL	Chlorinated Hydrocarbon Laboratory
CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
CINC-PAC	Commander-in-Chief, Pacific Command
CIO	Center-Institute-Office
CIS	Centre International D' informations de Securite de Sante au Travail
CONRAD	Contraceptive and Development Program
C/PHN	Center for Population, Health and Nutrition, USAID
CPS	Contraceptive Prevalence Survey
CPSD	Commodities and Program Support Division
CPT	Contraceptive Procurement Table
CPWR	Center for the Protection of Workers' Rights
CRADA	Cooperative Research and Development Agreement
CRL	Canadian Reference Laboratory
CRMLN	Cholesterol Reference Method Laboratory Network
CS	Child Survival
CSA	Child Survival Activity
CSFPC	Chinese State Family Planning Commission
CST	Children Survival Team
CSWs	Commercial Sex Workers
CTS	Contraceptive Tracking System
CVI	Children' s Vaccine Initiative
CYP	Cytochrome p-450

D

DACH	Division of Adult and Community Health, NCCDPHP
DACRRDP	Division of Acute Care, Rehabilitation Research and Disability Prevention
DART	Disaster Assistance Response Team

DASH	Division of Adolescent and School Health, NCCDPHP
DASTLR	Division of AIDS, Sexually Transmitted Diseases, and
DBBS	Division of Biomedical and Behavioral Science
DBMD	Division of Bacterial and Mycotic Diseases, NCID
DC	Developing Country
DCCT	Diabetes Complications and Control Trials
DCPC	Division of Cancer Prevention and Control, NCCDPHP
DDM	Data for Decision Making
DDT	Division of Diabetes Translation, NCCDPHP
DECOS	Dutch Expert Committee on Occupational Standards
DEEP	Diesel Emissions Evaluation Program
DEHLS	Division of Environmental Health Laboratory Sciences, NCEH
DFA-TP	Direct Fluorescent Antibody test for Treponema pallidum
DHAP	Divison of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome Prevention
DHAP-SE	Division of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome Prevention-Surveillance and Epidemiology
DHS	Demographic and Health Surveys
DIGESA	Direccion General de Salud Ambiental
DIH	Division of International Health
DISH	Developing Integrated Services for Health
DLS	Division of Laboratory Services
DMTS	Division of Media and Training Services
DNA	Deoxyribonucleic Acid
DNPA	Division of Nutrition and Physical Activity, NCCDPHP
DOE	Department of Energy
DOH	Division of Oral Health, NCCDPHP
DPAP	di-acyl-bisanilinopropanols
DPD	Division of Parasitic Diseases, NCID
DPHPPE	Disease Prevention and Health Promotion Priorities for Egypt
DPSE	Division of Physical Sciences and Engineering
DQ	Division of Quarantine, NCID
DRDS	Division of Respiratory Disease Studies
DRS	Directorate of Research Science
DRSP	Drug-Resistant *Streptococcus pneumoniae*
DRH	Division of Reproductive Health, NCCDPHP
DSHEFS	Division of Surveillance, Hazard Evaluations, and Field Studies
DSR	Division of Safety Research
DSTDP	Division of Sexually Transmitted Diseases Prevention
DTBE	Division of Tuberculosis Elimination
DTP	Diptheria-Tetanus-Pertussis
DUIP	Division of Unintentional Injury
DVBID	Division of Vector-Borne Infectious Diseases, NCID
DVP	Division of Violence Prevention
DVRD	Division of Viral and Rickettsial Diseases, NCID

E

E-RDC	Egyptian Reference and Diagnostic Center
EDC	Education Development Center, Inc.

EHLS	Environmental Health Lab Sciences
EI	Education International
EIA	Enzyme-linked Immunoassay
EID	Education and Information Division
EID	Emerging Infectious Diseases
EIS	Epidemic Intelligence Service
ELISA	Enzyme-linked Immunosorbent Assay
ELPAT	Environmental Lead Proficiency Analytical Testing
EMF	Electromagnetic Field
EMG	Electromyography
EMS	Eosinophilia-Myalgia Syndrome
EPA	Environmental Protection Agency
EPI	Expanded Program on Immunization
EPO	Epidemiology Program Office
ERCG	Emergency Response Coordination Group

F

FASTCARD	Family Study in Scotland
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FETP	Field Epidemiology Training Program
FHI	Family Health International
FHS	Family Health Services
FIOCRUZ	Fundacão Oswaldo Cruz
FIOH	Finnish Institute of Occupational Health
FP/MCH	Family Planning/Maternal and Child Health
FP	Family Planning
FPIA	Family Planning International Assistance Program
FPLM	Family Planning Logistics Management
FPPS	Family Planning Program Services
FS	Flexible Sigmoidoscopy
FTA-ABS	Fluorescent Treponemal Antibody Absorption Test
FTE	Full-time equivalency
FY	Fiscal Year

G

GCC	Gore-Chernomyrdin Commission
GISSI	Italian Prevention Study on Myocardial Infarction Risk
GPV	Global Program on Vaccines (WHO)
GST	Glutathione S-Transferase
GTZ	German Agency for Technical Assistance
GUD	Genital Ulcer Disease

H

HAC	HIV/AIDS Collaboration (Thailand)
HAPP	HIV/AIDS Prevention Project

HCV	Hepatitis C Virus
HDL	High-density lipoprotein
HELD	Health Effects Laboratory Division
HEPS	Highly Exposed yet Persistently Seronegative
HETAB	Hazard Evaluations and Technical Assistance Branch
HEV	Hepatitis E Virus
HGV	Hepatitis G Virus
HHS	Health and Human Services
HHV	Human Herpesvirus
HIP	Hospital Infections Program, NCID
HIV	Human Immuneodeficiency Virus
HPLC	High Performance Liquid Chromatography
HPR/HEP	WHO's Division of Health Promotion, Education Communication, Health Education and Health Promotion
HPV	Human Papillomavirus
HRSA	Human Resources and Services Administration
HSA	Health and Safety Authority (Iceland)
HSE	Health and Safety Executive
HSL	Health and Safety Laboratory
HSV	Herpes Simplex Virus
HTLV-I	Human T-cell Lymphotropic Virus Type I
HUS	Hemolytic Uremic Syndrome

I

IARC	International Agency for Research on Cancer
ICC	Interagency Coordinating Committee
ICCR	International Conference on Coal Research
ICD	International Classification of Diseases
ICE	International Collaborative Effort
ICIDH	International Classification of Impairments, Disabilities, and Handicaps
ICOH	International Commission on Occupational Health
ICOH	International Conference on Occupational Health
ICRC	International Committee of the Red Cross
ICRF	Imperial Cancer Research Fund
ICSC	International Chemical Safety Cards
IDD	Iodine Deficiency Disorders
IDF	International Diabetes Federation
IDMS	Isotope Dilution-Mass Spectrometry
IDU	Injecting Drug Users
IEA	International Ergonomics Associations
IEHRP	International Emergency and Refugee Health Program
IFA	Information for Action
IFCC	International Federation of Clinical Chemistry
IFRC	International Federation of the Red Cross and Red Crescent Societies
IKEM	Institute for Clinical and Experimental Medicine, Prague
ILO	International Labor Organization
ILSI	International Life Sciences Institute
IMC	International Medical Corps

IMCI	Integrated Management of Childhood Illnesses
INCAP	Nutrition Institute for Panama and Central America
INCLEN	International Clinical Epidemiology Network
INDRE	Instituto Nacional de Diagnostico y Referencia Epidemiologicos
INRS	Institut National de Recherche et de Securité
INSHT	Instituto Nacional de Seguridad e Higiene en el Trabajo
IOM	International Organization for Migration
IOSH	Institute for Occupational Safety and Health (Korean)
IPCS	International Programme for Chemical Safety
IPPF	International Planned Parenthood Federation
IPSS	Instituto Peruano de Seguridad Social
ISO	International Standards Organization
ISO/TC	International Standards Organization Technical Committee
ISO/WG	International Standards Organization Working Group
ISSTDR	International Society for STD Research
ISTC	International Science and Technology Center
ITH	Oil Refinery in Spain
IUATLD	International Union Against Tuberculosis and Lung Disease
IUCH	International Union for Circumpolar Health
IUHPE	International Union for Health Promotion and Education
IVD	In vitro diagnostic
IWSB	Industrywide Studies Branch

J

JATEC	Japan Technical Cooperation Center for Coal Resources Development
JAWE	Japan Association for Work Environment
JSI	John Snow, Incorporated
JSOHM	Japanese Society for Occupational Mental Health

K

KAP	Knowledge/Attitudes/Practices
KEMRI	Kenya Medical Research Institute
KISCO	Korea Industrial Safety Corporation

L

LC	Liquid Chromatography
LDL	Low-density lipoprotein
LITS	Laboratory Information Tracking System
LPAB	Laboratory Practice Assessment Branch
LRL	Netherlands Lipid Reference Laboratory
LSP	U.S. Lipid Standardization Program
LTA	Long-term Advisor
LTC	Long-term Care
LWOP	Leave without pay

M

MBAP	Mono-acyl-bisanilinopropanols
MDM	Medecins du Monde
MDR-TB	Multiple Drug Resistant Tuberculosis
MERTU	Medical Entomology Research and Training Unit
MERTU/G	Medical Entomology Research and Training Unit /Guatemala
MHA-TP	Microhemagglutination Assay for Antibodies to Treponema pallidum
MIPH	Management of International Public Health
MIS	Management Information System
MISS	Mexican Institute for Social Security
MMWR	Morbidity and Mortality Weekly Report
MOH	Ministry of Health
MOHP	Ministry of Health and Population
MONICA	Monitoring Trends and Determinants of Cardiovascular Disease Project
MOSPA	MONICA Optional Study of Physical Activity
MOU	Memorandum of Understanding
MPEP	Model Performance Evaluation Program
MPH	Masters of Public Health
MRC	Medical Research Council
MS	Mass Spectrometry
MSF	Medecins Sans Frontieres
MSHA	Mine Safety and Health Administration
MSU	Moscow State University

N

NACC	North American Collaborating Center
NAMRU3	Naval Medical Research Unit 3
NAFTA	North America Free Trade Agreement
NBB	Nutritional Biochemistry Branch, DEHLS, NCEH
NCCDPHP	National Center for Chronic Disease Prevention and Health Promotion
NCEH	National Center for Environmental Health
NCHS	National Center for Health Statistics
NCHSTP	National Center for HIV, STD, and TB Prevention
NCI	National Cancer Institute
NCID	Nationl Center for Infectious Diseases
NCIPC	National Center for Injury Prevention and Control
NCOH	National Centre for Occupational Health [South Africa]
NDMS	National Disaster Medical System
NEWVERN	A computer program to track contraceptive shipments
NFP	Natural Family Planning
NGO	Non-governmental Organization
NHANES	National Health and Nutrition Examination Survey
NHLBI	National Heart, Lung and Blood Institute
NHSP	National Health Survey of Pakistan
NIBSC	National Institute for Biological Standards and Control (UK)
NICAMS	National Initiative for Cholesterol Measurement Scheme (UK)
NID	National Immunization Days

NIDDK	National Institute of Diabetes and Diseases of the Kidney
NIEHS	National Institute of Environmental Health Science
NIGZ	Netherlands Institute for Health Promotion and Disease Prevention
NIH	National Institutes of Health
NIOEH	National Institute of Occupational and Environmental Health (Vietnam)
NIOSH	National Institute for Occupational Safety and Health
NIOSH-OD	National Institute for Occupational Safety and Health, Office of the Director
NIP	National Immunization Program
NIS	New Independent States
NIST	National Institute of Standards and Technology
NIVA	Nordic Institute for Advanced Training in Occupational Health
NIWL	Swedish National Institute for Working Life
NOKLUS	Norwegian Quality Assurance Scheme
NOMS	National Occupational Mortality Surveillance
NRS	Neurobehavioral Research Section
NTD	Neural Tube Defects
NTP	National Toxicology Program
NTU	National Taiwan University

O

OD	Office of the Director
OEPA	Onchocerciasis Elimination Program for the Americas
OFDA	Office of Foreign Disaster Assistance
OGH	Office of Global Health (CDC)
OMC	Osaka Medical Center
OMSHR	Office of Mine Safety and Health Research
OSH	Office on Smoking and Health, NCCDPHP
OSHA	Occupational Safety and Health Administration

P

PAHO	Panamerican Health Organization
PAMM	Program Against Micronutrient Malnutrition
PAP	Phenylaminopropanediol
PASA	Participating Agency Services Agreement
PAT	Proficiency Analytical Testing
PATH	Program for Applied Technology in Health
PCB	Polychlorinated Biphenyl
PCC	Poison Control Center
PCR	Polymerase Chain Reaction
PFA	Patient Flow Analysis
PHLIS	Public Health Laboratory Information System
PHPPO	Public Health Practice Program Office
PHS	Public Health Service
PHSWOW	Public Health Schools Without Walls
PHTN	Public Health Training Network
PIHOA	Pacific Islands Health Officer Association

PMRU	Preventive Medicine Research Unit
PPE	Personal Protective Equipment
PPV	Porcine parvovirus
PRC	Pittsburgh Research Center
PRL	Pittsburgh Research Laboratory
PT	Proficiency Testing
PTCC	Program Training and Consultation Center

Q

QA	Quality Assurance
QC	Quality Control

R

RA	Risk Approach
RAPID	Research and Public Information Dissemination
RFLP	Restriction fragment length polymorphism
RFRIHEP	Russian Federal Research Institute for Health Education and Promotion
RITM	Research Institute for Tropical Medicine
RNA	Ribonucleic acid
RPR	Rapid Plasma Reagin
RSES	Republican Sanitary Epidemiological Service
RSSA	Resources Support Services Agreement
RSV	Respiratory Syncytial Virus

S

SAB	Special Activities Branch, EHLS, NCEH
SAS	Statistical Analysis Software
SB	Surveillance Branch
SCF	Save the Children Foundation
SCOHN	Scientific Committee on Occupational Health Nursing
SES	Sanitary Epidemiological Service
SIDS	Sudden Infant Death Syndrome
SIMRAC	Safety in Mines Research Advisory Committee
SMDP	Sustainable Management Development Program
SNIWL	Swedish National Institute for Working Life
SPHL	State Public Health Laboratories
spp	Species
SRC	Spokane Research Center
STDs	Sexually Transmitted Diseases
SUDAAN	Software for the Statistical Analysis of Correlated Data
SUSTAIN	Sharing US Technology to Aid in the Improvement of Nutrtion

T

TA	Technical Assistance
TAACS	Technical Assistance for HIV/AIDS and Child Survival

TAG	Technical Advisory Group
TATB	Ten Against Tuberculosis
TB	Tuberculosis
TC	Total cholesterol
TCDD	Tetrachlorodibenzo-p-dioxin
TDR	Tropical Diseases Research
TG	Triglyceride
TLV	Threshold Limit Value
TNM	Tumor, Nodule, Metastasis
TOS	Toxic Oil Syndrome
TP-PA	Treponema Pallidum-Particle Agglutination
TPIB	Treponemal Pathogenesis and Immunobiology Branch
TRUST	Toluidine Red Unheated Serum Test
TST	TB skin test

U

UICC	Union Internationale Contre le Cancer
UMIST	University of Manchester Institute of Science and Technology
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific and Cultural Unit Organization
UNFPA	United Nations Fund for Population Assistance
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children' s Emergency Fund
UNMSM	Universidad Nacional Mayor de San Marcos
UNRWA	United Nations Relief and Works Agency
USAID	United States Agency for International Development
USBM	U.S. Bureau of Mines
USDA	U.S. Department of Agriculture
USDHHS	U.S. Department of Health and Human Services
USGS	U.S. Geological Survey
USIS	U.S. Information Service
USR	Unheated serum reagin
UTHSCA	WHO Collaborating Center in San Antonio
UVRI	Uganda Virus Research Institute

V

VDRL	Venereal Disease Research Laboratory
VOC	Volatile Organic Compound

W

WASP	Workplace Analysis Scheme for Proficiency (UK)
WEQAS	Welsh External Quality Assurance Scheme
WFP	World Food Programme

WHO/AMRO	WHO Regional Office for the Americas
WHO/EHA	WHO/Division of Emergency and Human Action
WHO	World Health Organization
WHR	Western Hemisphere Region
WOSCOPS	West of Scotland Coronary Prevention Study

X

XRD	x-Ray Diffraction WASP

Y

YARHS	Young Adult Reproductive Health Survey

Appendix III: *CDC Personnel Stationed Overseas*

REGION	COUNTRY	CIO	PARTNER
Africa	Botswana	NCHSTP	CDC
	Cote d' Ivoire	NCHSTP	CDC
	Cote d' Ivoire	NCHSTP	CDC
	Cote d' Ivoire	NCHSTP	CDC
	Cote d' Ivoire	NCHSTP	CDC
	Ghana	OGH	USAID
	Ghana	NIP	WHO
	Kenya	OGH	CC/G2000
	Kenya	NCID	CDC
	Kenya	NCID	CDC
	Kenya	NIP	WHO
	Kenya	NCID	CDC/KEMRI
	Malawi	OGH	USAID
	Mali	NCHSTP	USAID
	Morocco	OGH	USAID
	Nigeria	NCID	CC/G2000
	South Africa	OGH	USAID
	South Africa	NCHSTP	USAID
	Uganda	NCHSTP	USAID
	Zimbabwe	NIP	WHO/AFRO
	Zimbabwe	NIP	WHO/AFRO
	Zimbabwe	NCID	USAID
Asia/Pacific	Bangladesh	NIP	WHO
	China	NIP	WHO
	Fiji	OGH	WHO
	India	NIP	WHO/SEA
	India	NIP	WHO/SEA
	India	NCHSTP	WHO/SEA
	India	NIP	WHO/SEA
	Indonesia	OGH	WHO
	Indonesia	NCHSTP	USAID
	Indonesia	NIP	WHO
	Indonesia	NCCDPHP	UNICEF
	Pakistan	NIP	WHO
	Thailand	NCHSTP	CDC

REGION	COUNTRY	CIO	PARTNER
Asia/Pacific	Thailand	NCHSTP	CDC
	Thailand	NCHSTP	CDC
	Thailand	NCHSTP	CDC
	Thailand	NCHSTP	CDC
	Thailand	NCID/DQ	CDC
Europe	Denmark	NIP	WHO/EURO
	Germany	NCID	Robert Koch Institute
	Germany	NCID/DQ	CDC
	Switzerland	NCID	NCID
	Switzerland	NIP	WHO
	Switzerland	NCID	WHO
	Switzerland	OGH	WHO
	Switzerland	NIP	WHO
	Switzerland	NCCDPHP	WHO
	Switzerland	NCID	WHO
	Switzerland	NIP	WHO
	Switzerland	NIP	WHO
	Switzerland	OGH	WHO
	Switzerland	NCEH	WHO
	Switzerland	NCHSTP	WHO
	Switzerland	NCID	WHO
Latin & Central America	Barbados	NCHSTP	UNAIDS
	Guatemala	NCID	CDC/MERTU
	Honduras	OGH	USAID
	Mexico	NIOSH	WHO/PAHO
	Nicaragua	OGH	USAID
	Trinidad (ret 9/97)	EPO	WHO/PAHO
Middle East	Egypt	EPO	USAID
	Egypt	NIP	WHO/EMRO
	Egypt	NCID	DOD/NAMRU
	Saudi Arabia	EPO	GSA/EPO
	Yemen	NIP	WHO
New Independent States	Kazakstan	EPO	USAID

.Appendix IV: *WHO Collaborating Centers at CDC*

NCCDPHP

WHO Collaborating Center for Development of Integrated Primary Care Programs for Community Practice
WHO Collaborating Center in Perinatal Care and Health Services Research in Maternal and Child Health
WHO Global Collaborating Center for Health Promotion
WHO Collaborating Center on Health Education and Promotion of School-Aged Children and Adolescents
WHO Collaborating Center for Development of Integrated Primary Care Programs for Community Practice
WHO Collaborating Center on Monitoring Trends and Determinants of Cardiovascular Disease (MONICA) Project' s Optional Study of Physical Activity (MOSPA)
WHO Collaborating Center on Physical Activity
WHO Collaborating Center for Tobacco or Health

NCEH

WHO Collaborating Center for Emergency Preparedness and Response
WHO Collaborating Center for Reference and Research in Blood Lipids

NCHS

WHO Collaborating Center for Classification of Diseases for North America

NCHSTP

WHO Collaborating Center on HIV/AIDS

NCID

WHO Collaborating Center for Antimicrobial Resistance
WHO Collaborating Center for Arthropod-Borne Viruses, Western Hemisphere
WHO Collaborating Center for *Clostridium botulinum* (Proposed)
WHO Collaborating Center for Cysticercosis
WHO Collaborating Center for Dengue and Dengue Hemorrhagic Fever
WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis
WHO Collaborating Center for Foodborne Disease Surveillance
WHO Collaborating Center for Viral Hemorrhagic Fevers
WHO Collaborating Center for Reference and Research on Viral Hepatitis
WHO Collaborating Center for Reference and Reagents for Human Immunoglobulins Subclasses
WHO Collaborating Center for HIV/AIDS
WHO Collaborating Center for Surveillance, Epidemiology and Control of Influenza
WHO Collaborating Center for Insecticide Resistance Reference Laboratory

WHO Collaborating Center for Evaluating and Testing New Insecticides
WHO Collaborating Center for Leptospirosis
WHO Collaborating Center for Lyme Borreliosis
WHO Collaborating Center for Control and Elimination of Lymphatic Filariasis
WHO Collaborating Center for Malaria Control in Africa
WHO Collaborating Center for Measles Virus Diagnostics
WHO Collaborating Center for Prevention and Control of Epidemic Meningitis
WHO Collaborating Center for Mycoses in North America
WHO Collaborating Center for Reference and Research on Plague Control
WHO Collaborating Center for Poliovirus and Enterovirus Surveillance
WHO Collaborating Center for Reference and Research on Rabies
WHO Collaborating Center for Respiratory Viruses Other than Influenza
WHO Collaborating Center for Rickettsial Diseases
WHO Collaborating Center for *Shigella*
WHO Collaborating Center for Smallpox and Other Poxvirus Infections
WHO Collaborating Center for Staphylococcal Phage Typing
WHO Collaborating Center for Reference and Research in Syphilis Serology
WHO Collaborating Center for *Vibrio cholerae* 01 and 0139

NCIPC

WHO Collaborating Center for Injury Prevention and Control
WHO Collaborating Center for Neurotrauma

NIOSH

WHO Collaborating Center for Occupational Safety and Health

Appendix V: *International Visitors and Guest Researchers*

A Total of 641 International Visitors and Guest Researchers Came to CDC During FY 1997

AFRICA	
Angola	1
Botswana	1
Congo	2
Côte d' Ivoire	21
Eritrea	1
Ethiopia	1
Kenya	4
Madagascar	1
Morocco	1
Nigeria	10
Republic of Congo	1
Rwanda	1
Senegal	1
Sierra Leone	2
South Africa	13
Sudan	1
Tanzania	1
Uganda	8
Zambia	2
Zimbabwe	1
AMERICAS	
Argentina	6
Brazil	14
Canada	8
Chile	1
Colombia	6
Costa Rica	1
Cuba	1
Dominican Republic	2
Ecuador	1
Mexico	8
Trinidad	2
USA	163
Venezuela	2
NIS	
Armenia	1
Kazahkstan	1
Lithuania	6
Republic of Georgia	1
Russia	18
ASIA/ PACIFIC	
Australia	6
Bangladesh	2
Bhutan	1
China	89
Fiji	1
India	20
Indonesia	8
Japan	55
Malaysia	5
Marianas	1
Nepal	1
New Zealand	1
Pakistan	2
Singapore	3
South Korea	9
Sri Lanka	1
Taiwan	4
Thailand	13
Vietnam	7
EUROPE	
Austria	1
Belgium	1
Denmark	5
France	20
Germany	15
Ireland	1
Italy	4
Poland	2
Spain	6
Sweden	5
Switzerland	10
United Kingdom	9
MIDDLE EAST	
Egypt	5
Kuwait	3
Lebanon	1
Palestine	1
Saudi Arabia	1
Yemen	2

Appendix VI: *CDC Bilateral Health Agreements*

In FY 97, the Department of State review process was nearing its completion for the following bilateral health agreements:

- **Memorandum of Cooperation** on Research Cooperation in Sentinel Surveillance for Lassa Fever in the Republic of Guinea with the Institute of Research and Applied Biology of Guinea, Ministry of Research, Technology and Higher Education, and the Division of Preventive Medicine, Ministry of Health of the **Republic of Guinea**. (NCID)

- **Memorandum of Cooperation** on Research Collaboration Related to HIV Infection and AIDS with the Uganda Virus Research Institute, Ministry of Health, **Republic of Uganda**. (NCHSTP)

Prior to FY 97, the following bilateral health agreements were signed, implemented and are still in effect:

- **Letter of Agreement** with the Central Hospital of TB and Lung Diseases, Ministry of Health, **Latvia.** (NCHSTP)

- **Memorandum of Cooperation in Epidemiology** with the National Institute of Epidemiological Diagnosis and Reference (INDRE), Secretariat of Health, **Mexico**. (NCID, PHPPO, EPO)

- **Letter of Agreement** with INDRE, **Mexico**, concerning the Project on National Drug Resistance Surveillance. (NCHSTP)

- **Memorandum of Cooperation** with the Ministry of Health of the **Republic of Trinidad and Tobago** on " Adverse Central Nervous System Events Following Yellow Fever Vaccination." (NCID)

- **Letter of Agreement** with the National Tuberculosis Program, Ministry of Health, **Vietnam**. (NCHSTP)

- **Memorandum of Cooperation** in the area of tuberculosis control and prevention - with the Ministry of Health, **Botswana**. (NCHSTP)

- **Memorandum of Understanding** for Cooperation in the Field of Prevention of Birth Defects - with the Beijing Medical University, **China**. (NCEH)

- **Memorandum of Agreement** for the Cooperative Project to Study AIDS in **Côte D' Ivoire -** with the Ministry of Public Health. (NCHSTP)

- **Memorandum of Understanding** with the Finnish Institute of Occupational Health, **Finland**. (NIOSH)

- **Letter of Agreement** with Robert Koch Institute, Federal Ministry of Health, **Germany**. (NCID)

- **Renewal of the HIV/AIDS Research Collaboration** with the Thailand Ministry of Public Health, **Thailand**. (NCHSTP)

Appendix VII: *CDC Publications on Global Health*

Abulrahi H, Bohlega E, Fontaine R, Al-Seghayer S, Al-Ruwais A. Plasmodium falciparum malaria transmitted in hospital through heparin locks. Lancet 1997;349:23-5.

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